SWAZILAND

ANNUAL MEDICAL AND SANITARY REPORT

1970

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INTRODUCTION

Swaziland has an area of 17,400 square kilometers and is bordered on the north, west and south by the Transvaal, and on the east by Mocambique and Zululand.

The Territory is geographically divided into four well defined regions, running from north to south, namely the mountainous highveld in the west with an altitude of 3,500 to 5,000 feet, the middleveld with an average altitude of 2,000 feet; and the lowveld or bushveld with an altitude of 1,000 to 300 feet; and the Lubombo Plateau on the east, with an altitude of 2,000 feet. Scenically the Territory is one of the more attractive parts of Africa. The highveld has a temperate climate and frosts occur during winter. The climate of the middleveld is subtropical, although every few years a frost does occur.

Rainfall, which occurs chiefly in the summer, varies between approximately 30" and 50" a year. Drizzle and mists are frequent in the highveld areas. The country is well watered by numerous perennial streams and rivers, some of which are of a considerable size and now provide water for three large irrigation schemes, which have been established at Mhlume in the north-east, at Big Bend in the east (at both of which sugar is grown) and at Malkerns in the centre of Swaziland (which produces rice, sub-tropical fruit and citrus).

In addition to the irrigation schemes, other important agricultural activities are cattle ranching and seed cotton production in the bushveld and sub-tropical fruit, maize and rice production in the middleveld, in the southern portion of which a considerable amount of tobacco is also grown. In the mining field, Havelock Mine in the north-west is a most important producer of asbestos, and with the opening of the railway in November, 1964 connecting Swaziland with Lourenco Marques, the mining of iron ore at Ngwenya and of coal at Mpaka got underway. A pulp mill and a sawmill are operating at two of the forestry concerns in the highveld. Cotton ginnery, meat canning factory and breweries now operate at Matsapha Industrial Area.

A census of the total population was held in May, 1966. This was the first census of all the people in Swaziland.

The figures are as follows:-

Africans	362,367
Europeans	7,987
Other Non Africans	4,217
	374,571

One half of the area of the Territory is in communal ownership of the Swazi Nation and the remainder owned by individual tenure farmers. The Swazi have the exclusive use of the communal tenure areas and the remainder is open to farmers of all races without discrimination. Swazi dwellings for the most part consist of wattle-and-daub structures, or bee-hive huts, and small family collections of these huts are widely dispersed. Other than in the neighbourhood of the larger towns, there are no villages. Whilst the agricultural activities of the Swazi are still, in the main, concentrated on the raising of cattle and goats and the cultivation of maize, the work of the Ministry of Agriculture is now producing results, and both the standard and scope of Swazi farming are improving year by year.

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The following hospitals exist:-

A. Run by Government:

Mbabane	360 beds
Hlatikulu	172 beds
Pigg's Peak	50 beds
Mankayane	41 beds
Matsapha (Tuberculosis)	200 beds
Goedgegun	15 beds
Mental	200 beds
Total :	1038

B. Run by Missions:

Raleigh Fitkin Memorial, Manzini	237 beds
Good Shepherd, Siteki	119 beds

C. Run by Industry:

Havelock Mine Hospital	70 beds

D. Run Privately:

St. Michael's Clinic	23 beds
Total :	1487

Apart from these formal hospitals there are dispensaries or clinics run by industrial concerns at Mhlume, Tshaneni and Big Bend which can accommodate up to about 20 patients each.

The rural areas are catered for by 57 clinics staffed by trained nurses, 25 of them being conducted by Missions, 21 by Government and 11 by Industry and other organizations.

The Royal Commonwealth Society of the Blind Mobile Clinic visits all rural clinics, health centres and schools throughout the country. It has commenced functioning in the Lubombo District and completed the Shiselweni District. The purpose of the Mobile Eye Clinic is to do a survey on blindness and eye diseases in Swaziland; to treat minor eye ailments; to refer patients to the hospitals for major treatment and to advise on the care and protection of eyes. The Staff Nurse-in-Charge, Miss Rejoice Msibi has received training at St. John's Hospital at Baragwanath and in Kenya and Malawi where she was sponsored by the Royal Commonwealth Society for the Blind who will also pay her salary for the next 2 to 3 years during the survey.

There were 52 doctors and 4 dental surgeons in the Country in 1970. Of the 52 doctors, 20 were in Government Service, 8 in Mission hospitals, 11 in Industry and 13 in private practice. Of the 20 doctors in Government Service one, Dr. Wieland is a Radiologist seconded from the West German Government for 15 months and one Dr. Cole, a Peace Corps Doctor who donated a large of his time to the Paediatric Wards and Outpatient department at Mbabane. In addition, the South Korean Government provided a specialist Surgeon, Dr. Yoo, and a Physician Dr. Kim, for a two year period. Both Korean doctors were stationed at Hlatikulu Hospital.

The Mbuluzi Leper Hospital, situated 10 miles from Mbabane and run by the Nazarene Mission, with the assistance of a Government grant, copes most adequately with the small number of lepers in the country.

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The British Red Cross Society is now running Infant Welfare Clinics at Mbabane, Hlatikulu, Stegi, Pigg's Peak, Manzini, Kwaluseni, Mhlambanyathi and Nhlangano at which most useful work is being done. The Save the Children Fund has started a school feeding scheme.

In addition, the Swaziland Red Cross, with OXFAM and Ministry of Health assistance, are conducting a nation wide measles and polio vaccination campaign. The Mbabane, Manzini, Pigg's Peak Urban areas Industrial and Rural areas have now been covered. The campaign will be completed early in 1971 and the Ministry of Health will take on of the maintainance phase by making the measles vaccine available at Hospitals, Health Centres and Rural Clinics.

The Public Health Services of the Country are centred at the Health Office in Manzini for the control of Malaria and Bilharzia and at Mbabane which controls enviromental health, Health Education and a Public Health Nursing Unit. Additional Health Centres were opened at the King Sobhuza 11 Clinic in Manzini, Hlatikulu Hospital and at Mankayane Hospital thereby taking a considerable load off the busy Out Patient Departments of the hospitals by concentrating on the preventive aspects of health care. There is a Pathology Laboratory at which routine serological, biochemical bacteriological and haematological investigations are carried out.

The Medical Association of Swaziland whose members include private practitioners, medical missionaries and Government medical officers, hold quarterly meetings, which are well supported and which make up to some extent for the lack of professional contact so common in territories such as Swaziland. Two interesting talks were given during the year on Hypentension by Dr. Reid and on Dental care by Dr. J. Clement.

The training of nurses in Swaziland is carried out at the Ainsworth Dickson Training College attached to the Raleigh Fitkin Memorial Hospital, Manzini, where training for the Nurses Examination Board of Botswana, Lesotho and Swaziland qualifications in General Nursing, lasting four years, and in Midwifery, lasting one year, is given. The Ainsworth Dickson Training College can at present train sufficient nurses for the needs of Swaziland. Dispensers are trained at Government Hospitals as required. Laboratory Assistants are trained at the T.B. Centre Public Health Laboratory by a W.H.O. Technician. This laboratory does Public Health work as well as the T.B. laboratory investigation for the whole Country.

The Swaziland Medical and Dental Council was formed under an Act of Parliament and held several meetings during the year. The first Medical and Dental Council of Swaziland consisted of the following members:

Dr. J. Klopper (Chairman)
Drs. S. Hynd
S. Shongwe
R. Stephenson,
J. Clement
and Mr. W. Ramsden
Mr. D. Shongwe was apponted Registrar.

CHAPTER 1

REVIEW OF THE YEAR'S WORK

The Ministry of Health has undergone considerable expansion since Independence on a number of fronts and has become one of the biggest Ministries in the Swaziland Government and employs 651 people.

1. STAFF.

The establishment has 651 increased from 512 in 1967 to 549 in 1968 and presently employs 651 in 1970. The increase in personnel is reflected in the following table as being due mainly to the increase in the number of nurses employed:-

1967	163	Nurses
1968	184	"
1969	214	"
1970	214	"

Of the 214 nurses 100 are enrolled and 114 registered. The large proportion of nurses are doubly qualified in General Nursing and Midwifery.

As a result of the expansion of the Nursing Services the surplus of nurses in Swaziland has been greatly reduced and there were not many, Swazi National doubly qualified nurses without employment.

In pursuance of Government policy of localization the Ministry of Health has localized 97% of its staff and of the 22 expatriates employed 20 are professionals of whom 11 are doctors. The Nursing Services are 100% localized.

During the year Dr. Kennedy returned to Swaziland and seven new doctors were recruited which included Dr. King, Specialist Surgeon, Dr. Dober and Dr. Smith. Dr. Dober was appointed Prisons Medical Officer and had thereby visitng all H.M. prisons throughout the country regularly as well as several rural health centres. Dr. Smith was stationed at Mankayane and as far as can be determined this was the first time that a Medical Officer was appointed to this hospital. The recruiting position had therefore improved considerably during the year and at the end of the year only one post remained to be filled.

Dr. Z.M. Dlamini was appointed Acting Senior Medical Officer Hlatikulu Hospital on his return from qualifying in Israel.

Other doctors recruited to the service during the year were Drs. Nxumalo, Patient, Anderson and Chuene.

Dr. Y. Kaplan T.B. Medical Officer was promoted to Senior Medical Officer.

Other Staff changes and promotions were:-

Mr D.N. Shongwe, Principal, 1.1.70 in place of Mr. S. Dube transferred to the Ministry of Education.

Services of Mr K. Jenkin, SCAAP Hospital Administrator extended for one year by the British Ministry of Overseas Administration.

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Mr. W.K. Bujela, Executive Officer (Staff) 1.11.69 in place of Mr J. Nyembe.

Mr. M.A. Witcomb F.I.L.T. appointed Laboratory Technologist on 1.11.70 replacing Mrs M. Gibbon B.Sc. who had served the Ministry of Health on a part time basis for 10 years.

Mr. Babington Khoza appointed Laboratory Technologist at the Mbabane Hospital on 6th May, 1970.

Mr. Moses Ndlela, Laboratory Technologist, completed his contract on 3rd December, 1970 and returned to South Africa.

Mr. P.M. Matthews promoted to Health Inspector with effect from 1st January, 1970 in place of Mr. D. Eckard.

Miss Jose Hooper I.V.S. left after nearly three years with the Ministry of Health.

Mr. Ndabazezwe Dlamini promoted to Mental Hospital Supervisor (Supernumerary) prior to Overseas training in mental nursing.

Mr. J.N. Herslet promoted to Senior Accountant G.2 with effect from 1st April, 1970.

Mr. P.P. Mbhamali, Accountant, transferred to Prime Minister's office, replaced by Mr. J. Mavimbela from the Treasury.

Mr. M.A. Baker, Hospital Secretary, transfered to Staff Training Institute, replaced by Miss A. Mlambo, who was in turn replaced by Mr J. Nyembe upon her transfer to the Ministry of Education.

Mr. J. Nyembe, Executive Officer, transferred to Mbabane Hospital and re-appointed Hospital Secretary.

Mr. J. Masuku, Trainee Hospital Secretary, promoted to Hospital Secretary and appointed to Hlatikulu Hospital.

Mrs. V.W.S. Mabuza, Matron Grade 11 promoted to Matron Grade 1 and appointed to Mbabane Hospital.

Mrs. C.T. Abrahams, Nursing Sister, promoted to Matron Grade 11.

OBITUARY:

Mrs E. Mtetwa	Nusing Sister	15.12.70
Mr. D. Shabangu	Radiographer	16.12.70

The Ministry of Health continued to rely on technical assistance from a number of agencies:-

Federal Republic of Germany	Radiologist
Anglo American	Panel of Specialists
Internation Voluntary Service	Physiotherapist
Peace Corps	Part time Medical Officer at Mbabane
United Nations Development Programme	1 Laboratory Technician at Central Public Health Laboratory.
O.D.A.	1 Hospital Administrator (SCAAP).
Korea	1 Surgeon Specialist 1 Medical Specialist
O.D.A.	Legal draughtsman and adviser.

The Specialists visit Mbabane Hospital mainly, at regular intervals on a Pro Deo basis. They perform major operations, advise incumbent staff and help to raise the standards of medical care generally. Teaching programmes for Nurses have also been Pathologist, Gynaecologist, Urologist, Thoracic Surgeon, E.N.T. Surgeon, Orthopaedic Surgeon, Paediatrician, Plastic Surgeon, Anaesthetist, General Surgeon, Dermatologist and Psychiatrist.

A number of medical students from Medical Schools visited Swaziland and worked in the bigger hospitals during their vacations, also on a voluntary basis. Their presence relieved the hard pressed medical staff of some of their burdens and the students were welcome.

A S.C.A.A.P. officer was sent to Swaziland to train local personnel in hospital administration and to introduce a uniform system of administration within the hospitals and institutions of the Ministry of Health.

2. BUILDINGS.

The tempo of building construction and expansion diminished considerably during the year and did not reach the anything like the high output of the previous two or three years.

The major part of the capital works programme was financed by the British Government.

At Mbabane Hospital the second ramp block extending from the main hospital block to the children's ward and kitchen was completed.

In addition a 9 bedded security ward for sick prisoners was completed.

On the 27th November the Hon. Minister Dr. Allen Nxumalo opened at Mbabane Hospital an Orthopaedic Workshop which was donated by the Standard Bank of Swaziland as an Independence Gift. The Standard Bank also donated the equipment and machinery in the workshop. The Orthopaedic technician had been trained at Makerere Medical School and was sponsored by the World Rehabilitation Incorporated of New York. The technician's salary was paid by the Standard Bank during 1970. The Workshop forms a very important adjunct to the Physiotherapy Unit, opened in 1969 and to the panel of visiting specialists which inter alia consists of an orthopaedic surgical team.

The nurses home at Nhlangano Hospital was completed and occupation was taken in November. The nurses home has accommodation for six nurses.

Work commenced on the sick bay and treatment room at the Matsapha Mental Hospital but the whole Ministry of Health Capital Works programme was bedevilled by cement shortages, administrative delays in getting projects and finances approved and by a host of other factors which prevented the successful conclusion of a rather ambitious building programme. These de;ays onevotably upset the Ministry of Health's timetable for introducing new services.

3. OTHER PROJECTS.

(i) The Royal Commonwealth Society for the Blind sponsored Mobile Eye Clinic performed sterling work. It completed its survey of Shiselweni and only a motor accident which kept it off the road for the last quarter of the year prevented it from completing the Lubombo District itinerary. It is hoped that the vehicle will be operational early in 1971. Despite this setback 33,213 patients were examined of which 1,563 were treated for various ailments and 23 were assessed to be blind. Patients were refered to the bigger centres where ophthalmic surgeons attached to the visiting panel of specialists from South Africa were able to perform 95 operations for the restoration of sight and 59 operations for the prevention of Blindness.

(ii) The measles campaign which was carried out in conjunction with the Swaziland Red Cross with OXFAM Aid drew to a close and the maintainance phase at which measles vaccine would be stored and administered at hospitals, urban health centres and rural health clinics was envisaged for next year.

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(iii) The Central Medical Stores which was established in 1967 at Matsapha intensified its activities for the year during which 341 preparations were manufactured. These preparations were packed in 7596 Wine Bottles, 2677 ½ gallon plastic bottles and 4858 one gallon plastic bottles. Analytical tests were carried out 249 prepations.

(iv) The laboratory services extended their activities and a wider range of investigations is being undertaken at each of the peripheral laboratries. This has been made possible by the expansion improvements to the laboratory buildings at Mbabane, Hlatikulu and Piggs Peak Hospitals and the donation of valuable laboratory equipment from U.N.I.C.E.F.

(v) The dental services have been firmly established with the occupation of a dental surgery at Mbabane Hospital with the latest equipment costing R6,000. The resident dentist also visited Hlatikulu and Piggs Peak Hospitals regularly.

(vi) The panel of specialists from South Africa continued prevailing an excellent service. They were named "Harry's Angels" after Mr Harry Oppenheimer the benefactor of the scheme. News headlines were made when the first open heart surgery in Swaziland took place at Mbabane Hospital. This was an indication that the facilities and nursing standards were sufficient to merit an operation of such delicacy taking place.

4. DONATIONS.

The Ministry of Health continued to receive aid during the year from the following sources:-

	DONAR	ITEM	VALUE IN RANDS
1.	U.K. Government	Renovations to Hospitals and Clinics	224,100
2.	U.N.I.C.E.F.	Equipment for Laboratories and Public Health Services	24,500
3.	Standard Bank	Orthopaedic Workshop	11,200
4.	Anglo American Corporation	Dental and Surgical Equipment	2,500
5.	W.H.O./U.N.D.P.	Equipment and Supplies	4,200
		TOTAL =	266,500

SCHOLARSHIPS, COURSES, SEMINARS

NAME	COURSE		VENUE
Mr. George Mkhonta	Orthapaedic Techniques Orthotics & Prosthetics	Jan.	Makerere Uganda
Mr. W. Twala Mr. S. Nsibande	Polyvalent Microscopy	March.	Lagos
Staff Nurse Roseline Dlamini	Blood Transfusion Techniques.	April.	Johannesburg
Dr. George Msibi Mrs A. Msibi	Med. Olrstets & Cynal	April.	Makerere Uganda
Mr. D. Shongwe	Admin. Course for Seniar Officer	May/ June.	Tanzania
Dr. S. Shongwe	Workshop in Health planning	June.	Brazzaville
Mr. Selby Dlamini	Medicine	July	Tanzania
Mrs B. Dlamini	Medicine	July	Tanzania
Staff Nurse Lydia Nxunalo	Operating Theathe Techniques	August	King Edward Hospital, Durban
(Sister Emmelina Nxumalo) (" Ivy Shilubane)	Public Health & Post Education	August	Zambia
Staff Nurse Louis B. Dlamini	B. Sc. Nursing	Sept.	Ibadan Nigeria
Hon. Min. Dr. Nxumalo) Dr. F. Friedman)	WHO Regional Committee Meeting	Sept.	Accra
Dr. Murphy) Dr. Kennedy) Mr. Cotton)	WHO Conference on Cholera	Sept.	Ibadan
Staff Nurse Hilda Hlanze	Orientation Course for Health Centre Nurses	Sept.	Lagos
Staff Nurse Dorothy Mbelu	Health Visitors Course	Sept.	Abedeen
Petty K. Dlamini	Medicine	Oct.	Chana
Mr. Dan Shongwe	Administration of Health Services	Oct.	Dakar

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Hon Min. Dr. Nxumalo) Dr. Murphy)	WHO Conference on Cholera	Nov.	Nairobi
Dr. Margaret Chuene	M. P. H.	Nov.	Israel

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OFFICIAL VISITORS

Mr. John Kiddle	Solicitor's Division, Dept. of Health & Social Security, London.
Mr. Roy Manley	Secretary General, Internationa Volunteer Services, London.
Dorothy D. Petrouski	Asst. Professor Community Health, Catholic University Washington, D. C.
Mr. A. J. D. Simpson	Deputy Head of the Crown Agents External Relations Department.
Mr. Dobes	UNICEF Programme officer, Lusaka
Mr. Ian S. Fraser	Inter Regional Adviser in General Public Administration (O & M)
His Excellency Yum Young Lim	Korean Ambassador to Swaziland
Mr. Juan Monros	World Rehabilitation Fund, New York U.S.A.
Mr. Chris Hwse	OXFAM, Maseru
Dr. W. J. Du Plessis	Department of Surgery, University of Witwatersrand, Johannsburg.
Mr. S. G. Pitts	Chairman, Southern Transvaal District Methodist Church
Joon K. Park	Special Envoy of the President of the Republic of Korea, National Assembly, Soeul Korea.
Sich K. Suk	First Secretary, Korean Embassy in Ethiopia
Jocelyn Hull	WHO Short-tern Nursing Adviser from Australia
Doctor Pollock	WHO. Rep. Kenya
Dr. I. Ladnyi	WHO Inter Country Adviser, Nbi.
Barbara C. Schifield	Ministry of Overseas Development, Nursing Adviser from London.
Johan Kaboha	Commonwealth Secretariat, London
Mr. Lo Ming Yuan	Chinese Embassy, Mbabane
Mr. Chen Min-ching	ditto
Mr. P. R. G Pearce	Commonwealth Housing Corporation
Mr. Paul	Austrian Ambassador

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Mr. David Anderson	Ford Foundation, Nbi
Mr. Ferguson	Water Adviser, Min. of Overseas Development
Mr. Vilar Quairos	Provincial Sec. for Communications, Mocambique
Dr. L. Q. Botelhode Souze	Tourist Department Mocambique
Mr. Carrington	Peace Corps Regional Director for Africa
His Excellency Signor Alberto C. P. Di Fontana-Pradosa	Italian Ambassador ro Swaziland
His Ex. Dr. G. G. A. Sonnehol	German Ambassador to Swaziland
Mr. N. Ntiwane	Swaziland High Commissioner in London
Mr. M. P. Palzur	Charge do`Affaires of Israel stationed Pretoria

CHAPTER II

COMMUNICABLE DISEASES

TUBERCULOSIS

The National Tuberculosis Control Programme is integrated into the existing health services of the country. The latter consists of Hospitals and Peripheral Health Centres (P.H.C's) or Clinics. The Programme is a Ministry of Health activity.

Tuberculosis "Case" finding and treatment procedures are standardised throughout the country. "Case" finding is carried out by Nurses and Doctors in charge of P.H.C's and Hospitals by means of sputum collection from patients complaining of chest symptoms.

This is a valid means of finding Tuberculosis patients because P.H.C's and hospitals are accepted and well attended by the population.

Case Finding (See Table 1):

1. As was pointed out in the last Annual Report the conscientiousness with which sputum specimens are collected varies tremendously from month to month. This is borne out by the total "minimum" (39) and "maximum" (68) participating P.H.C's and Hospitals in any one month. There is really no reason why every P.H.C. should not submit specimens every month.

2. Just over 400 more specimens of sputum were collected in 1970 than in 1968 (8735) - a very small increase indeed.

3. Of the 9153 sputum specimens, 552 were "positive" on direct microscopy which gives a positivity rate of 6.03%. This is slightly less than in 1969. Towards the end of the year, the positivity rate fell to below 6%. (This rate is derived from the 4th Quarterly Report 1970.)

4. All specimens received are subjected to culture examinations. Of 12,512 culture examinations which were direct microscopy negative, 232 were "positive" which gives a positivity rate of 1.85%.

5. While "Case" finding by definition depends on sputum specimen examination, X-Ray units are available at the National T.B. Control Centre, the larger hospitals and some industrial concerns. These are all "fixed" units. The mobile mass X-Ray Unit was discontinued in 1967 because of its low yield of Tuberculosis patients relative to its high cost.
Just over 7% of all X-Rays seen at the T.B. Control Centre showed the presence of cavitation. (Because the referred large films were more selected, the rate was higher for these films - 19.28%.)

6. Treatment (See Table 2)

Just over 1000 "new" patients were put onto treatment during the year, of which (analysed by quarters) 794 actually started their treatment.

7. The non-attendance rate by quarters is shown, and compared to 1969 (34%) there has been a marked improvement, (18%). It is not outside the bounds of possibility to reduce the non-attendance rate by at least half.

8. By the end of 1970 the 1968 cohort of Tuberculosis patients put onto treatment had the opportunity of having had at least 24 months during which to complete their treatment (for the purposes of this study this was taken to be at least 9 months - usually treatment continues for at least 12 months).

Table 3A gives the depressing details. Out of 1139 patients, only 474 (41.6%) completed at least 9 months' treatment while 562 patients (49.4%) did not. To the latter number must be added the 42 patients who relapsed or who were persistently sputum positive (3.7%) despite the fact that they completed at least 9 months' treatment.

The only satisfactory feature to emerge from this Table is the fact that after at least 9 months' of treatment relapse occurs in only 1.25% of our patients (6 out of 480).

It is more than likely that patients who relapsed during treatment and those who were persistently sputum positive throughout were irregular with their medication or collected their medication but did not take it.

9. In Table 3B the number of 1968 patients who were alive and still highly infectious at their last sputum examination was 162 or 14.2% of all patients prescribed treatment. Those who died - 77 (6.7%) were also still highly infectious to the time of their death. The other categories (direct Microscopy "negative" but culture "positive") can probably be disregarded since they are very much less infectious. (From the Table it can be seen that some purposely were not prescribed any treatment at all because they had no radiological evidence of disease.)

Quite obviously our major problem is still (and will continue to be) the defaulting patient. A large number of those patients recorded in Table 3A as having completed at least 9 months' treatment also defaulted to some extent before returning to and completing treatment. It wasthe exception rather than the rule to find a patient who regularly collected his treatment every month for 9 or more months. As I pointed out last year, the dismal failure of our treatment programme must be blamed on the health services and not on the patient. It is inexcusable for the patient to be dismissed with his tablets and told to report again for more tablets in a month's time, without being given an explanation of the disease and how he is to behave while on treatment. If patients were traced sooner after defaulting then they actually are,part of the problem would be solved and to this end it is proposed to further rationalise and increase the home visiting service in 1971.

In Kenya, the routine National T.B. programme manages to ensure that more than 70% of tuberculosis patients complete their treatment. On this basis our services have a long way to go.

Unfortunately in our country the solution is not an easy one. It will require the active co-operation and insight of all concerned in the treatment of tuberculosis patients. It should be possible for an "integrated" T.B. Control Programme to see that very much more than 41% of patients complete their treatment.

10. Extrapulmonary Tuberculosis (See Table 4)

The most commonly occurring form was tuberculosis involvement of the glands, followed by tuberculosis of the spine. Almost one third of the patients with extrapulmonary T.B. also had pulmonary disease.

11. Vaccination - "Mass" programme (Shiselweni District - See Table 5)

There were 2700 more B.C.G. vaccinations and just under 1000 more smallpox vaccinations in 1970 than in 1969. The coverage of the eligible population will not be known until the whole District is completed in 1971.

Vaccination in this phase of the programme is carried out by a mobile vaccinating team who spend 2 days at each school vaccinating school children and all other non-school going children living near the school. B.C.G. and smallpox vaccination is given simultaneously. B.C.G. vaccination is not preceded by Tuberculosis Testing.

Vaccination - Maintenance Programme (All Districts) (See Table 5)

Vaccinations are carried out by nurses in charge of P.H.C's and in hospitals. Vaccinations are also done at nearby schools by P.H.C. nurses.

Although more than twice the number of B.C.G. and three times the number of smallpox vaccinations were done than in 1969, there is still a great deal of room for improvement.

Refresher Courses

During the year there were three courses in T.B. Control procedures for P.H.C. nurses, being part of a general public health refresher course. These courses were of benefit to the nurses, a number of whom had not had formal teaching for a number of years. It is planned to continue the courses.

ANNUAL SURVEY OF NATIONAL TUBERCULOSIS CONTROL PROGRAMME : 1970

TABLE I : CASE - FINDING 1970

(BY DISTRICTS)

(N.B.: "Case" = patient with pulmonary T.B. who is also sputum "positive"; "suspect" = patient with X-Ray changes suspicious of pulmonary T.B. but whose sputum is "negative" for Tuberculosis bacilli).

	MANZINI	SHISELWENI	LUBOMBO	HHOHHO	TOTAL
A. Participating Health Centres/ Hospitals	9-23	10-15	11-17	8-15	39-68
B Number of sputa from "A" examined by direct microscopy	4401	1680	1056	2016	9153
C. "Cases" found on direct Microscopy of "B"	205	139	92	116	552
D. Rate % ("C"/"B")	4.63	8.27	8.73	5.77	6.03
E. "Cases" found on culture only	115	45	26	46	232
F. Rate % (12,512 cultures)					1.87
G. Total Cases ("C" + "E")	320	184	118	162	784

	70mm Films (Taken at National T.B. Control Centre)	Large Films (sent from "A" to National T.B. Control Centre)	TOTAL
H. Number of X-Rays	3255	602	3857
I. Number with pulmonary abnormalities	444	389	833
J. Rate % ("I"/"H")	13.65	64.55	25.7
K. Number among "H" with cavities ("cases", "suspects" and others)	"Cases 93) "suspects) 160 & others 67)	51) 65) 116	144) 132) 276
L. Rate % ("K"/"H")	4.92	19.28	7.16

TABLE 2 : TREATMENT 1970
(By Districts)

	MANZINI	SHISELWENI	LUBOMBO	HHOHHO	TOTAL
A. Number of patients prescribed treatment for the first time					
("Cases"	296	185	107	148	736
("Suspects"	130	97	8	91	326
B. Number of "L" who actually started treatment	273^{N}	214	144^{N}	163	794

TABLE 2 : TREATMENT 1970 (cont'd)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
C. Non-attendance Rate % per Quarter ("A"minus "B"/"A")	19.65	23	23.8	18.2

N The reason for this apparent discrepancy is that patients sometimes start treatment in a different district from the district in which treatment is prescribed for them.

TABLE 3A : PATIENTS PRESCRIBED TREATMENT DURING 1968 AND FOLLOWED UP UNTIL DECEMBER 1970

Completed at least 9 months' treatment[N] up to end of 1970: last sputum negative on direct micrscopy alone or on direct microscopy plus culture "SUCCESSES"	474
Treatment still incomplete at end of 1970	4
Died before treatment could have been commenced	32
Died during treatment	18
DEFAULTED (did not start treatment or did not complete 9 months' treatment up to end of 1970)(including 78 who died after diagnosis was made and after treatment should have started)	562
Bacteriologically - proven relapse during treatment	11
Persistently sputum-positive during treatment (at least 9 months' treatment recorded up to end of 1970)	25
Bacterioligically - power relapse after treatment completed (at least 9 months' treatment recorded)	6
Missing details	4
Emigrated before or during treatment	3
TOTAL	1139

SUCCESSES	FAILURES
41.6%	49.4%

Isolated "positive" cultures during treatment (considered to be of no consequence)	22
Isolated "positive" direct microscopies (and sometimes cultures) during treatment considered to be of no consequence)	5
Number of patients from whom no follow up sputa were collected after initial sputum - positive results, and from whom follow-up sputa should have been collected	6

[N] "9 months' treatment = 9 monthly supplies of tablets collected, not necessarily in consecutive months.

TABLE 3B: PATIENTS WHO BEGAN TREATMENT DURING 1968 AND WHOSE SPUTA WERE DIRECT-MICROSCOPY "POSITIVE" OR DIRECT-MICROSCOPY NEGATIVE BUT CULTURE "POSITIVE" AT LAST EXAMINATION

STATUS AT END OF 1970	DIRECT MICROSCOPY 1+,2+,3+,4+	DIRECT MICROSCOPY CULTURE 1+	DIRECT MICROSCOPY 0: CULTURE 2+,3+4+
ALIVE	162	69(24)[N]	16
DEAD	77	10	6

EXPLANATION : Direct Microscopy 0 = No Tubercle Bacilli on standard field
1+ = 1 to 5 " " " " "
2+ = 6 to 24 " " " " "
3+ =25 or more " " " " "
4+ = Tubercle Bacilli in most " "

Culture 1+ = 1 - 24 colonies
2+ = 25 - 99 "
3+ = 100 + "
4+ = confluent growth

[N] The figure in brackets represents the number of patients for when no treatment was prescribed.

TABLE 4 : EXTRAPULMONARY TUBERCULOSIS 1970
(BY DISTRICTS)

	MANZINI	SHISELWENI	LUBOMBO	HHOHHO	TOTAL
GENITO-URINARY	1	1(1)	0	0	2(1)
GLAND	13(6)	4(2)[N]	1	13(6)[+]	31(14)
JOINT	2	1(1)	1	1	5(1)
INTESTINE	0	0	0	2	2
MENINGES	0	0	0	5	5
PERICARDIUM	0	0	0	2(1)	2(1)
PERITONEUM	3	1	0	2	6
SKIN	3	1	0	2(1)	6(1)
FISTULA-AN-ANO	0	0	0	1	1
LUPOID B.C.G. REACTION	1	0	0	0	1
SPINE	4	4(1)	0	6(3)	14(4)
TOTAL	27(6)	12(5)	2	34(11)	75(22)

NOTE : Figures in brackets represent the number of patients who also had pulmonary Tuberculosis.

[N] one case gland and periteoneum

[+] one case gland and spine.

TABLE 5 : "MASS" VACCINATION PROGRAMME SHISELWENI DISTRICT 1970

AGE	B.C.G.	SMALL POX VACCINATION		
		PRIMARY	RE-VACCINATION	TOTAL
0	1228	5583	747	6330
1 - 4	5051			
5 - 14	17009	11140	6214	17354
15+	1179	1645	8147	9792
TOTAL	24467	18368	15108	33476

TABLE 6 : "MAINTENANCE" VACCINATION PROGRAMME ALL DISTRICTS 1970

AGE	B.C.G.	SMALLPOX VACCINATION		
		PRIMARY	RE-VACCINATION	TOTAL
0	1597	1359	351	1710
1 - 4	936			
5 - 14	636	411	1392	1803
15+	60	31	6153	6184
TOTAL	3229	1801	7896	9697

ANNUAL MALARIA REPORT

During the year, the malaria transmission season March to June was quiet, because of very dry conditions, and this together with an extensive spraying programme with 75% D.D.T. wettable powder, there was not a large build up of A. gambiae. The result of this was that we only had four indigenous cases of malaria, which were isolated and did not indicate continuing transmission in areas where they occurred. The other 28 cases were all imported from Mozambique.

Meteorologic records from various stations are shown in the following table.

METEOROLOGICAL REPORT

Month	MANZINI			STEGI			BIG BEND			MHLUME			GOLELA		
	Altitude	2000 ft.		Altitude	2200 ft.		Altitude	500 ft.		Altitude	950 ft.		Altitude	600 ft.	
	Rainfall in mm.	Temp °C Max.	Min.	Rainfall in mm.	Temp °C Max.	Min.	Rainfall in mm.	Temp. °C Max.	Min.	Rainfall in mm.	Temp. °C Max.	Min.	Rainfall in mm.	Temp. °C Max.	Min.
July 1969	17.0	29.5	4.5	36.0	27.0	6.0	10.7	31.0	1.6	8.9	24.4	9.7	0.0	33.0	5.5
August	2.0	31.8	5.6	6.0	29.0	7.2	1.5	33.6	2.6	3.0	26.4	11.5	0.0	33.0	7.5
September	127.7	33.0	5.1	89.0	30.0	7.2	38.1	34.6	3.1	46.7	27.3	14.9	39.5	35.5	8.0
October	231.1	37.0	11.5	208.5	32.2	11.0	166.3	39.9	13.5	188.0	27.2	17.6	168.3	42.0	11.0
November	155.7	34.7	10.5	116.0	37.0	8.0	76.8	37.0	9.5	112.8	29.7	18.2	63.5	37.0	9.5
December	129.9	39.0	14.5	80.0	32.0	14.0	49.8	36.5	14.0	77.5	29.2	19.0	91.5	40.0	16.0
January 1970	76.5	37.0	16.6	0.0	34.0	16.0	8.8	40.5	16.0	15.5	33.1	20.8	107.5	43.5	13.0
February	121.7	33.6	13.5	146.5	36.0	11.0	78.7	37.4	12.8	35.3	31.9	18.6	101.8	38.5	12.0
March	44.2	35.5	12.5	63.0	32.0	12.0	21.3	37.0	9.5	57.2	31.4	17.8	21.0	37.0	12.1
April	0.0	35.0		8.0	31.0	10.2	30.9	35.7	7.5	14.5	29.5	14.8	No record	No record	
May	56.7	33.0	6.0	27.5	31.5	8.3	20.7	33.5	1.4	10.2	27.4	13.2	35.0	39.0	7.0
June	0.0	29.5	6.0	6.8	27.6	8.0	9.5	32.0	0.6	6.3	24.5	9.5	2.0	37.1	8.0

POPULATION AND HUT COUNT.

Population figures for areas actively worked by Health Assistants were as follows:

Adults	Children	Infants	Total
35845	27191	4665	67701

The total estimated population for the whole of the malarious area i.e. maintenance and consolidation area was 210555.

Malaria Control Measures

Residual spraying with 75% D.D.T. wettable powder was carried out as follows, January to March 23,020 huts were sprayed along the North East border in the Hhohho area and stretching to Lomahasha, including Tshaneni, Mhlume, Vuvulane, Tambankulu, Siphofaneni, Sinceni, Big Bend including the Nyetane Sivunga areas. Spraying was finally completed at the end of April.

Spraying was started again late in November when 18 new extra pumps and a good supply of D.D.T. were received. Spraying will be limited in future to all the large sugar estates and a belt forming a "cordon sanitaire" along the north eastern border starting in the Hhohho district and continuing eastwards to Mlaula and the Portuguese border.

Surveillance Operations

These were continued by the field staff who have to do space spraying of homes and routine taking of blood films. Space spraying revealed mostly the presence of culicines.

Parasitology

Blood slides taken during the year were examined at the Health Office, Manzini by 4 microscopists and the following results were recorded:

Source	Negative	Positive	Total	Species
Indigenous	20151	4	20155	
Immigrants	1236	28	1264	
	21387	32	21419	

Species

Plasmodium falciparum	26
Plasmodium malariae	1
Plasmodium falcip/mal.	5

Annual parasite incidence : 0.15
Annual blood examination rate: 9.7

Immigrants originated from the following sources:

Source...

Source	Negative	Positive	Total	% Positive
Mocambique	362	24	386	0.62
Zululand	399	1	400	0.25
Transvaal	471	1	472	0.21
Others	4	2	6	0.33
	1236	28	1264	2.2

Entomology

The following identifications were carried out on adult mosquitoes.

A. gambiae 4
a. funestus group 15
A. squaniosus 1
A. coustani 6
A. rufipes 10
A. pretoriensis 2
A. marshalli 15

The paucity of adult mosquitoes was due to the drought conditions prevailing and this together with the vast spraying programme put into operation, there was generally a scarcity of indoor resting of mosquitoes in houses, and where there were complaints of people being bitten by mosquitoes, this was largely because of a huge build up of culicines.

Field staff generally did not send in many adult mosquitoes for identification.

Larval Searching: This was not done, and this because of the dry conditions, so that there was a lack of breeding sites.

Pit Shelters: Observations made on these only revealed 1A. squanosus and 3A. marshalli at Mpofu H/8 - 1A. funestus 3A. rufipes and 10A. marshalli at Herefords F/6 and 5A. marshalli at Mliba I/20.

Pit shelters were mainly dug so as to determine response to residual spraying, outside resting and to study hibernation. 14 of these have been dug and suitably protected against cattle in various places in the lowveld.

Meetings: (1) A refresher course for Public Health field staff was run at the short course centre S.A.C.U.C., Luyengo from the 10th to 14th August, 1970. Participants to the course included malaria, bilharzia, Public Health and Tuberculosis Health Assistants. Talks and lectures together with films and demonstrations were given by Health Inspectors, Public Health Nurses, Community Development, Home Economics and Agricultural Experts.

(2) A meeting took place in December between ourselves and the Portuguese Malaria Control authorities at Lourenco Marques for exchanging information of mutual interest.

Lectures: Lectures with demonstrations on malaria were given to rural clinic nurses, and student nurses from the Raleigh Fitkin Memorial Hospital.

ANNUAL BILHARZIA REPORT

After an absence of a few years, the vote for bilharzia control was restored in April. Though only a relatively modest sum of R2000.00 was allocated, this enabled the bilharzia section to think positively about control, rather than confine thoughts and actions to garnering epidemiological data and maintaining the status quo in a number of small focal control areas.

The staff position also improved slightly. It was found possible to divert a newly recruited health assistant to this section, thereby increasing its establishment by 100%. In addition we were occasionally able to redeploy some members of anti malaria casual labour force, for survey and control work on selected bilharzia projects.

The staff position is, however, still critical. There is a shortage of trained staff to extend the scope of our present range of activities. There is an increasing awareness of the menace of bilharzia throughout the country and no doubt people are aware that the position regarding control of transmission is not as bleak as it was some years ago. Moreover if the snail control scheme, started by the management of Ubombo Ranches, Sugar Estates, Big Bend, should prove successful, there is every prospect of the managements of other irrigated estates becoming interested in bilharzia control. Approaches on these lines have already been made to this unit. Unless trained staff is available to take advantage of this type of situation, the opportunity to make a spectacular leap forward in bilharzia control may be lost or unnecessarily delayed.

Perhaps the most interesting if not the most important item of news in the sphere of bilharzia control this year, was the decision of the management of Ubombo Ranches, Sugar Estates, Big Bend to undertake comprehensive mollusciciding as the main spring of a bilharzia control programme.

What is truly heartening and encouraging about this decision is that it appears to have been taken after full consideration of the factors involved, not least of which is to be the cost of mollusciciding annually fo an indefinite period.

Ubombo Ranches sugar estates covers an area of approximately 10,000 acres. It is the last of five estates that draw irrigation water from a canal which is fed by gravity from the Great Usutu River. Two main branch canals carry water across the estate. Their capacity is supplemented as required by water from a number of night storage dams. In addition a large artificial reservoir has recently been completed. This reservoir, known as Banana Dam, is over 300 acres in area and some sixty feet deep at its deepest point. Its function is to conserve water that would otherwise run off and back into the Usutu River during periods of heavy rain and low water demand. It may also be used for fishing and aquatic sports.

The greater part of the sugar estate is under sprinkler irrigation, the remainder being under flood irrigation. Drainage lines carry excess water off the estate directly back to the Usutu River or into the Nyetane River at its northern boundary.

The canals, dams and drainage lines form suitable habitats for snail hosts of bilharzia. The siting of villages within the irrigated area unfortunately ensures that not only employees but their families also have access to potentially infected water at all times. In addition a large

number of ...

number of field workers cross the Nyetane River, especially at week-ends, to a recreational area on the opposite bank that appears to have been established for their benefit.

In April this year, a preliminary snail survey of the irrigation system and the Nyetane River was carried out by staff of this unit. This showed a significant snail population throughout the entire system with the species Biomphalaria being predominant insofar as snail hosts of bilharziasis are concerned. Detailed results of this survey are tabulated hereunder:

U.B.R.

BIG BEND

	Biomph.	Physopsis	Tropicus	Melanoides	Lymnae	Shedding Mammalian Cercariae	
						B Biomph	P Phys
Main Canal	0	0	0	20	0		
George Dam	0	0	0	8	0		
Paddies Dam	0	0	0	16	0		
Mick's Dam	12	0	30	4	0		
Speculation Dam	0	0	4	6	0		
Majombe Dam	142	0	60	18	0	15	
Ben's Dam	0	0	24	1	0		
Boundary Dam	8	6	0	12	0	1	
End Dam	0	0	62	24	4		
Fish Dam 1	18	8	12	30	0	5	
Fish Dam 2	58	12	3	2	0	11	2
Fish Dam 3	98	26	4	0	0	14	
Fish Dam 4	164	40	19	0	0	21	6
Fish Dam 5	34	0	0	1	0	5	
Koos Dam	0	0	11	10	29		
Mbangweni Dam	14	0	8	2	0	2	
Marula Dam	81	4	0	6	0	12	

	Biomph.	Physopsis	Tropicus	Melanoides	Lymnae	Shedding Mammalian Cercariae	
						Biomph	Phys
Banana Dam	6	0	12	0	0	1	
Spray Pump Stream	0	0	0	30	0		
Ngogo Drain (Top)	22	10	0	16	4	4	1
Ngogo Drain (Middle)	48	6	0	20	8	9	
Ngogo Drain (Bottom)	16	4	0	3	7		
Sangwalume Stream Drain (Top)	0	0	0	32	18		
Sangwalume Comp Stream	8	0	46	62	12	2	
Majombe Stream (Top)	27	0	0	22	4	5	
Majombe Stream (Middle)	18	12	14	8	19	2	3
Majombe Stream (Comp)	14	0	36	42	9		
Boundary Drainage	0	0	40	50	0		
Koos Drainage	54	6	25	18	4		
Usutu Drainage	64	0	0	32	18	3	
Mpembe Stream (Middle)	14	0	16	8	29	1	
Shonalanga Drain	0	0	0	30	27		
End Canal	0	0	150	70	0		
Nyetane River (Top)	186	32	53	2	58	32	6
Nyetane River (Bottom)	44	21	17	36	27	11	5

Mollusciciding began in November. Frescon supplied by Shell Chemicals was the molluscicide chosen. This is an exciting new chemical with the promise of tremendous potential. It is molluscicidal and not ovicidal whereas its modern predecessor, Bayluscide, is both molluscicidal and ovicidal.

Frescon was applied by means of a constant head applicator at the point of entry of the canal into Ubombo Estates. It was dripped constantly into the canal at this point for a period of sixty hours. During this time all storage dams except one, were filled with treated water. Treated water was also passed into the drainage lines and the Nyctane River.

Two Shell Chemical experts, Mr T. Wells and Mr C. Challis organised and co-ordinated the work involved in ensuring an effective distribution of treated water throughout the irrigation system. They were most ably assisted by staff from Ubombo Ranches.

Mollusciciding is to be carried out at intervals of two months. Experience gained at the first application will enable modification of the system of treatment to be effected at the next treatment, in January, 1971. In addition certain points on the estate and some of the larger dams may have to be hand sprayed.

A post treatment snail survey carried out about one week after treatment gave encouraging results and is tabulated hereunder.

U.B.R.

BIG BEND

	Biomph.	Physopsis	Tropicus	Melanoides	Lymnae
George's Dam	0	0	0	0	0
Paddies Dam			D R Y		
Nicks Dam	0	0	17	90	2
Speculation Dam	0	0	166	42	0
Majombe Dam	23	0	46	163	0
Ben's Dam	0	0	20	0	0
Kariba Dam	1	0	6	4	0
Boundary Dam	0	0	150	41	0
End Dam	0	0	6	114	0
Fish Dam 1	0	0	0	0	0

contd

	Biomph.	Physopsis	Tropicus	Melanoides	Lymnae
Fish Dam 2+	30	0	26	3	0
Fish Dam 3+	30	0	36	1	2
Fish Dam 4+	32	0	409	0	0
Fish Dam 5+	24	0	4	0	0
Koos Dam	0	0	44	3	1
Mbangeni Dam	0	0	0	0	2
Marula Dam	112	0	17	2	0
Ngogo Drain (Top)	0	0	0	2	18
Ngogo Drain (Middle)	24	1	7	62	8
Ngogo Drain (Bottom)	1	0	2	6	2
Sangwalume Stream Drain (Top)	5	0	1	202	7
Sangwalume Comp. Stream	0	0	0	25	2
Majombe Stream (Top)	30	0	55	179	3
Majombe Stream (Middle)	47	1	51	97	41
Mpembe Stream (Middle)	84	0	240	66	21
Shonalanga Drain	0	0	50	43	18
End Canal	0	0	59	240	0
Nyetane River (Top)	89	2	3	0	62
Nyetane River (Bottom)	4	0	1	11	2

+ Fish dams not treated.

A stool ...

A stool and urine survey of Ubombo Ranches staff and their families was started in the last quarter of the year and is still under way. Preliminary results indicate that infection with Sch. Mansoni is more prevalent than that of Sch. Heamatobium. A somewhat surprising result is also emerging indicating that the overall prevalence of bilharziasis while high, is still considerably lower than that found in the Mhlume, Tshaneni irrigation complex.

Snail control at Ubombo Ranches will greatly reduce and even probably eliminate transmission of bilharziasis on the estate. However, until such time as control is extended to other estates in the area, the reduction in incidence among employees and their families may be disappointing, as population movement may bring them into contact with infected water outside the present control area. This will be an important point to bear in mind, when the time to assess the effectiveness of control arises. This point regarding the size of the controlled area is important. If it is not large enough much of the work done is negated by population movement in and out of the area.

In response to a request from the headmaster of the school at Ekutsimeleni near Luve, a survey of scholars attending the school was made in the first quarter of the year.

Urine from 246 scholars was examined. Of these some 82% were found to be excreting ova of Sch. Haematobium. About 25% of the pupils had frank Haematuria ranging from light to heavy some 33% were heavily infected as indicated on the accompanying table by the symbol 4+. Furthermore, as only one sample of urine was examined, those found negative not being re-examined, it may be assumed that the true figure for bilharziasis among pupils attending the school would be higher than the 82%recorded above.

Ekutsimeleni School

Table 1

No. examined	No-ve	No+ve	% + ve
246	47	199	82

Table 2

Severity of infection assessed according to excretion of ova. This for a variety of reasons is not a true indication of severity of infection but is a useful and commonly used yard-stick.

No of Pupils in each Category					TotalNo. of Pupils
F	No. ±	No. 2+	No.3+	No. 4+	
10	3	42	26	97	199

Key to ...

Key to number of ova in midday urine specimen.

F = 1 to 3
± = 4 to 10

1+ = 1 to 30
2+ = 31 to 60

3+ = 61 to 100
4+ = over 100

Questioning of pupils elicited the information that they had contact with potentially infected water at a number of easily identifiable places in neighbourhood. The result of a snail survey of these contact points was as follows:

Water Body	B.Physopsis	B.Forskali	Shedding Cercariae
Mbijwana Stream	12	3	2 snails
" Dam No. 1	–	4	–
" Dam.No.2	–	6	–
Lomayisela Stream	28	–	5 snails
Luthosha Dam			
Ingondlindoda Stream	4	–	2 snails
Mabuti Stream	12	–	–
Shebedze Stream	4	–	–

Focal spraying of contact crossing points at Ekutsimeleni started in September. Ideally the whole length of each stream ought to have been given blanket treatment with molluscicide regardless of snail population. Because of staff shortage we had to be content with focal spraying of contact points. This is now established on a regular 4 to 6 weeks cycle, with pre-treatment surveys being made prior to spraying. Even if we do not succeed in eliminating the snail intermediate host completely, we should be able to reduce the snail population to a level where the risk of transmission of bilharziasis is greatly reduced.

The problems posed by bilharzia control on large irrigated estates such as Ubombo Ranches and in areas such as Luve differ. On the large estates, the problem insofar as the families of employees are concerned is largely man-made and maybe attributed to faulty or negligent planning. Communities on these estates are often scattered among a number of small housing complexes euphemistically called villages. These are generally sited within the irrigated area, with canals, dams and drainage ditches nearby. Though potable water for domestic purposes is usually provided, sanitary facilities are often inadequate and frequently badly maintained. These villages usually have a bleak and unattractive atmosphere and make little provision for the natural drive of children seeking recreational outlets. Furthermore they are generally found in the hottest part of the country where swimming is an essential part of the life of children. It is not surprising therefore, that children swim and fish in irrigation canals and ditches and that their elder sisters and mothers frequently prefer to make their private ablutions and do the family laundry in them also.

Ideally communities on these estates should be accommodated in larger units, representative of a true village, with all this implies from the social and recreational points of view. These villages, should if possible be sited below the irrigation system. They should have a piped pure water supply, adequate sanitary and ablution facilities and paddling pools for children.

In rural areas the problem differs to the extent that communities are obliged to base themselves near springs, streams or dams, all usually highly polluted. These provide water for domestic use as well as animals. Protection of springs and the provision of safe water, either by this means or from boreholes, or indeed by any other means, would help to break the cycle that depends on pollution by humans of natural waters. Where such safe water supplies are provided, they will fail in their purpose unless they meet all basic community needs.

Dams have been constructed in many parts of the country. Some are old, some of recent construction and quite a few are in the process of being built. While a necessary development, it is important to convince those concerned that these dams are almost without exception health hazards. In populated areas they are used jointly by humans and domestic animals. They form ideal snail habitats and must be a potent source of enteric infections. It seems illogical that a department of government can create such health hazards and apparently expect another department of government to control them from the health point of view. All such dams should be fenced and where used to supply water for humans and animals, there should be separate "draw off" water points. Fencing has the effect of encouraging a dense growth of vegetation inside the fence which makes access to the dam more difficult. I suggest that fencing and the provision of one or more water outlets should be the responsibility of the department of government building the dam or individual owning the dam.

A control project aimed initially at focal control of the snail intermediate hosts of bilharzia, was started in Manzini towards the end of the year. The initiative for this came from the Manzini Town Council. The idea is to control transmission of bilharzia within the urban and peri-urban area, which includes most of the Mzimnene catchment area.

Preliminary snail surveys of all water bodies involved in the programme have been completed and mollusciciding started.

Office records indicate that surveys and control work on the Mzimnene and its tributaries have been carried out intermittently in the past. This was at a time when sulphation was virtually the only weapon available against the host snail. Molluscicides now available are more predictable and much more effective at concentrations less lethal to fish and other acquatic life.

The Mzimnene and its tributaries offers a stiff challenge. They tend to be slow moving and choked with week. They are heavily infested with snails, mostly physopsis, tropicus and lymnae but also with odd focus of biomphalaria.

The scale of snail infestation in Mzimnene River is demonstrated by the fact that two men in the course of a few hours work, were able to collect from the river two thousand snails, intermediate hosts of either bilharzia or fascioliasis. The snails were required by Shell Chemicals for testing against their molluscicide Frescon and were despatched to London.

From the ...

From the catchment area these streams traverse densely populated areas. People use them as a source of water for domestic purposes. They ford them at well defined crossing points. Two of these crossing points one below the abbatoir and the other near Swaziland Milling are in constant use by many people and may be provided with footbridges by the Manzini Town Council in the new year. This of itself, apart from being a worthwhile and badly needed amenity, would be an anti bhilharzia measure.

Sometime in the year, when the prevalence survey at Big Bend is completed, it is hoped to arrange a similar survey of scholars attending schools situated within the Manzini Catchment area.

Bilharzia Examination at Health Office

A total of 368 urines were examined of which 291 were positive for ova of Sch. Haematobium.

Bilharzia Pilot Control Project - Phonjwana

Malacology:

Date	Site	Physopsis	Lymnae	Forskali	Shedding Cercariae
8.1.70	Dam	Nil	Nil	3	Nil
"	+Stream	4	Nil	3	2
"	Spring	Nil	Nil	12	Nil
19.2.70	Dam	Nil	Nil		Nil
"	Stream	Nil	Nil	11	Nil
"	Spring	Nil	Nil	2	Nil
19.3.70	+Dam	Nil	4	Nil	Nil
"	Stream	Nil	Nil	14	Nil
"	Spring	Nil	Nil	9	Nil
15.5.70	Dam	Nil	Nil	Nil	Nil
"	+Stream	6	Nil	Nil	Nil
"	Spring	Nil	Nil	1	Nil
26.6.70	Dam	Nil	Nil	Nil	Nil
"	+Stream	Nil	8	Nil	Nil
"	Spring	Nil	Nil	Nil	Nil
21.8.70	Dam	Nil	Nil	Nil	Nil
"	+Stream	Nil	10	Nil	Nil
"	Spring	Nil	Nil	2	Nil
18.9.70	Dam	Nil	Nil	Nil	Nil
"	+Stream	Nil	26	Nil	Nil
"	Spring	Nil	Nil	Nil	Nil
15.10.70	Dam, Stream, Spring	Nil	Nil	Nil	Nil
11.12.70	Dam	Nil	Nil	Nil	Nil
"	Stream	Nil	Nil	Nil	Nil
"	Spring	3	Nil	Nil	Nil

+ Application of bayluscide

Parasitology:

62 children between the ages 6 and 10 in grades 1 and 2 were examined for urinary schistosomiasis and six found to be positive. Case histories indicate that the infection was not acquired at Phonjwana where control started in 1961.

Bilharzia Pilot Control Project - Madonsa : Manzini District

Malacology:

Date	No. of Physopsis	No. Shedding Cercariae	No. of Points where Physopsis was found	Total No. of Points surveyed	No. of Points treated with Bayluscide
14.1.70	4	2	1	23	1
17.3.70	20	4	9	23	9
5.5.70	Nil	Nil	Nil	23	Nil
10.6.70	2	Nil	2	23	2
18.8.70	1	Nil	1	23	1
1.10.70	Nil	Nil	Nil	23	Nil
12.11.70	14	1	4	23	4

Bilharzia Pilot Control Project - Nomasha

Malacology:

Date	Dam near Police Station	Dam near Clinic	Swamp	Nkalashane Dip Dam & Pools	Shedding Cercariae
25.2.70	1 lymnae	Nil	2 lymnae	+26 lymnae 23 segmentorbis 5 forskali	Nil
26.2.70	Nil	Nil	4 lymnae	+2 physopsis 9 lymnae 1 forskali	Nil
6.10.70	3 lymnae	+7 physopsis	+13 physopsis	Nil	Nil
9.12.70	+1 lymnae	Nil	Nil	+6 lymnae	

+application of bayluscide

LEPROSY

Number of Patients:	Male	Female	Children	Total
i. In residence on 1st January 1970	18	7	1	26
ii. New admissions during the year..	10	7	3	20
iii. Re-admissions during the year...	11	4	0	15
iv. Discharged during the year......	19	14	1	34
v. Deaths	1	0	0	1
vi. Non-infected children...........				3

Classification of New Patients:	Male	Female
i. Lepromatous	8	3
ii. Tuberculoid	3	3

Origin of Patients: (new - re-admissions and children)	Male	Female	Children	Total
Manzini area	7	3	1	11
Mbabane area	9	4	1	14
Mankayane area	1	2	1	4
Pigg's Peak area	1	1	0	2
Siteki area	1	1	0	2
Hlatikulu area	1	1	0	2
Total				35

Outpatient re-attendances by former patients - 69.

5 male patients were transferred to R.F.M. Hospital for surgery.

1 female patient was transferred for delivery to R.F.M. Hospital.

X-rays have been taken at Mbabane Hospital on any patients requiring such examination.

Average age of patients admitted - 34 years.

Laboratory

Blood smears for Lepra bacilli - 26

Positive .... - 12
Negative .... - 14

putum specimens were sent to T.B. Centre and R.F.M. Hospital.

Wasserman Reaction - 3 patients found to be Positive.

Miss Elizabeth Cole and her staff have continued to give excellent service to the patients. The morale of both patients and staff has been high. Former patients who have developed ulcers or shown evidence of recurrence have not been fearful to return to the hospital.

With improved conditions generally, and the advances in treatment of the past two decades, the battle against this condition is slowly being won. The average number of patients is decreasing gradually and the average age

group is lowering. It is difficult to assess the exact number of sufferers in the country and there are still pockets of infection. While this is still the case, the work of the hospital remains unfinished, but a phasing out is evident on the horizon.

There has been a policy of returning cases to their homes as soon as they appear inactive and with taking one Dapsone tablet per week, the condition is held in check. However, there is still the problem of cases reactivating when they discontinue their tablets. For the more resistant cases "Lamprene" is now establishing itself as the drug choice at the hospital, but Dapsone still rules supreme.

It has been an encouragement to the patients and staff to have the continued interest in them by members of the public. Mr Cuthbert Pretious and members of the Red Cross have continued to make regular visits, supplying the patients with wool and other items for occupational therapy. Intense interest occurs at Christmas when funds and food come in from many different sources to cheer the patients. Donations this year came from the Swaziland Iron Ore Company and Havelock Mine as well as smaller donations from other sources. Notable this past year was a young boy at St Mark's School who won a prize at the Science Fair and who gave the major portion of his cash prize to the Red Cross for the patients' Christmas party. This is indicative of the interest shown by the community.

Other areas of occupational therapy have been the upkeep of gardens, an excellent crop of mealies and vegetables was harvested and the hens continued to lay eggs. All these projects have helped to maintain a healthy attitude. The patients will miss the Domestic Science students from the S.A.G.M. Mbuluzi Mission who did so much in teaching the patients to knit and cook. The Domestic Science course is being transferred to Manzini in 1971.

The Swaziland Government has continued to support and maintain the hospital, as has the Leprosy Mission and the Church of the Nazarene.

Ministers of different churches have been welcome to nurture the spiritual welfare of the patients through visitation and holding services and classes amongst them. This aspect, in a closed community of this nature, is very important in maintaining a healthy outlook and in enhancing recovery.

CHAPTER III

GOVERNMENT AND SUBSIDISED MISSION HOSPITALS AND CLINICS:

Comparative tables for three years, setting out the staffing of Government Hospitals and the admissions, attendances, etc., at Government and Subsidised Mission Hospitals and Clinics, follows:

GOVERNMENT HOSPITALS:

	1968	1969	1970	1968	1969	1970	1968	1969	1970	1968	1969	1970	1968	1969	1970	'69	1970	'69	1970	1968	1969	1970
	Mbabane			Hlatikula			Mankayane			Pigg's Peak			Nhlangano			TB Mat-sapha		Mental Matsa-pha		TOTALS		
Hospital Staff:																						
Physiotherapist	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Dental Officer	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Lab. Technician	–	1	1	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2
Medical Officers	6	8	8	3	4	5	–	–	1	1	1	1	1	–	–	–	–	–	1	11	13	16
Matron	1	1	2	1	1	1	1	1	1	1	1	1	–	–	–	–	–	–	–	5	4	5
Nursing Sisters	11	12	11	6	6	7	–	–	–	–	–	–	1	1	–	–	–	–	–	18	19	18
Radiographer	2	2	2	2	2	2	–	–	–	–	1	1	–	–	–	–	–	–	–	4	5	5
Senior Radiographer	1	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1
Housekeeper	1	1	1	1	1	1	–	–	–	–	–	–	–	–	–	1	1	–	–	3	3	3
Medical Assistant	–	–	–	1	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1
Lab. Assistant	2	1	2	1	1	1	–	–	–	1	1	1	–	–	–	–	–	–	–	3	3	4
Dispensers	3	3	3	2	2	2	–	–	–	–	1	1	–	–	–	–	–	–	–	5	6	6
Nurses	76	97	97	48	60	58	10	10	10	17	18	18	7	7	7	5	5	3	3	170	200	198
Nurse Aides	15	20	20	13	14	14	2	2	2	2	2	2	1	1	1	4	4	–	–	37	43	43
Ambulance Drivers	5	6	6	2	3	4	1	1	1	1	1	2	1	1	1	–	–	–	–	10	12	14
Orderlies	29	34	33	19	20	21	3	4	4	6	6	6	4	4	4	4	3	–	12	64	72	83
Hospital Supervisor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	1
Notes:	Pharmacists stationed at Central Medical Stores; Senior Radiographer covers the Territory; One Housekeeper shared by T.B. and Mental Hospitals; 3 Pupil Dispensers stationed at Central Medical Stores; Nurse Aides now include old classification of Outpatient Attendants; Ambulance Drivers - there are two extra drivers at Central Medical Stores who can be called upon.																					
BEDS:																						
a) Full-Paying	14	14	14	8	8	8	–	–	–	–	–	–	–	–	–		–		–	22	22	22
b) Part-Paying	161	293	360	155	160	172	33	41	41	50	50	50	12	14	14	200	200	200	200	811	964	1038
ADMISSIONS:																						
a) Full-Paying	591	554	643	204	163	262	–	–	–	–	–	–	–		INCLUDED IN HLATIKULU	–	–	–	–	795	717	905
b) Part-Paying	8011	7771	8695	4121	4280	4753	1337	1422	1731	1752	1407	1325	959	INCLUDED IN HLATIKULU HOSPITAL		362	224	189	231	17,334	15,437	16,959
DEATHS:	380	305	257	128	171	179	16	N/A	N/A	55	73	95	40			4	8	3	4	638	556	543
OPERATIONS:																						
a) Major	484	634	699	143	228	252	–	–	–	2	–	–	–		–	–	–	–	–	629	862	951
b) Minor	733	762	1158	755	1065	928	–	–	–	68	70	66	–		–	–	–	–	–	1556	1897	2152
X-RAY:																						
a) Examinations	8271	8504	8708	4786	4713	5142	–	–	–	726	750	1085	–		–	–	–	–	–	13,783	13,967	12,955
b) Screening	11	87	521	–	–	–	–	–	–	–	–	–	–		–	–	–	–	–	11	87	521
OUT-PATIENTS:																						
1st Attendances:																						
a) Full-Paying	3591	3284	4305	526	409	803	20	–	1050	78	–	–	258		–	–	–	–	–	4,473	3,693	6,158
b) Part-Paying	20062	22935	35590	10,051	12,276	11,802	6,906	4,875	4,809	8,269	7,376	9,153	10,057		11,721	667	–	–	–	55,813	48,129	73,075
SUB.ATTENDANCES:																						
a) Full-Paying	1,395	1,435	2,468	521	510	35	16	–	13	33	–	–	110		–	–	–	–	–	2,075	1,945	2,516
b) Part-Paying	15,776	13,112	15,432	8,508	9,874	469	2,703	975	254	1,530	3,647	4	6,847		975	–	–	–	–	35,364	27,608	17,134
GRAND TOTAL:	39,924	41,366	57,895	19,606	23,069	13,109	9,645	5,850	6,326	9,910	11,023	9,157	17,272		12,696	667	–	–	–	97,725	81,975	99,883

SUBSIDISED MISSIONS HOSPITALS:

	Raleigh Fitkin Memorial Hospital:			Good Shepherd Hospital:			TOTALS:		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
BEDS:									
a) Full-paying	22	22	22	5	5	5	27	27	27
b) Part-paying	300	300	300	62	62	62	362	362	362
ADMISSIONS:									
a) Full-paying	508	515	559	76	92	111	584	607	670
b) Part-paying	5,833	4,913	4,772	1,158	1,469	2,303	6,991	6,382	7,075
DEATHS:	382	238	245	53	65	91	435	303	336
OPERATIONS:									
a) Major	485	592	581	2	50	62	487	642	643
b) Minor	984	956	897	194	210	312	1,178	1,166	1,209
X-RAY:									
a) Examinations	5,049	4,579	4,020	1,027	668	452	6,076	5,247	4,472
b) Screening	4	–	–	–	–	–	4	–	–
OUTPATIENTS:									
1st Attendances:									
a) Full-paying	2,503	2,426	3,094	996	588	434	3,499	3,014	3,528
b) Part-paying	12,132	11,233	16,147	10,362	6,073	10,274	22,494	17,306	26,421
Sub-attendances:									
a) Full-paying	2,555	2,163	1,599	357	272	155	2,912	2,435	1,754
b) Part-paying	15,235	10,887	10,120	3,138	4,559	1,178	18,373	15,446	11,298
GRAND TOTALS:	32,425	26,709	30,960	14,8 3	11,492	12,041	47,278	38,201	43,001

SUBSIDISED MISSIO CLINICS:

	Totals:			Mission Totals:		
Nazarene Missions:						
Siteki	6,528	6,570	9,855			
Engingeni	3,452	3,204	6,363			
Pigg's Peak	4,567	4,467	9,969			
Mliba	2,347	2,145	3,589			
Mafutheni	1,252	1,822	2,753			
Bhekinkosi	2,453	321	2,208			
Balegane	2,583	2,945	6,693			
Malinda	3,283	3,846	5,399			
Mayiwane	7,271	8,432	9,068			
Tambankulu	9,941	11,066	12,013			
Lalela	942	638	225			
Tembelihle	1,661	1,661	3,517			
Manzana	315	85	–			
Kashewula	455	1,512	71[illegible]			
Engculwini	672	1,536	1,379			
Esigcaweni	830	1,167	2,166	48,638	51,467	76,756
Malandela	–	–	522			
Roman Catholic Missions:						
Our Lady of Sorrows	9,070	9,462	8,469			
St. Juliana	4,737	2,850	3,187	14,875	12,312	11,656
Good Shepherd Missions:						
Lwaula	–	–	313			

GOVERNMENT CLINICS	TOTAL ATTENDANCES			DISTRICT TOTALS		
	1968	1969	1970	1968	1969	1970
HHOHHO DISTRICT						
Hhohho	14,425	11,851	12,758			
Lester	7,971	6,546	8,929			
Mhlangatane	10,315	8,997	9,710			
Nkaba	2,522	3,964	6,422	35,733	31,358	
MANZINI DISTRICT						
Lobamba	-	9,961	16,538			
Mangcongco	2,610	2,704	3,111			
Dwalile	4,958	4,388	6,429			
Luyengo	11,061	11,140	18,886			
Mhlangatsha	4,063	3,870	5,703			
Mgazini	1,572	407	773			
Endinileme	1,266	650	651			
Nqabaneni	-	-	169	25,530	33,120	52,260
SHISELWENI DISTRICT						
Gege	7,865	7,036	9,826			
Hluti	9,442	8,966	8,574			
Lavumisa	2,528	9,693	10,384			
Mahamba	6,983	7,170	13,003			
Mhlotsheni	8,558	11,447	14,257			
Edwaleni	7,676	6,645	10,409			
New Haven	7,378	11,737	18,104	50,430	62,726	84,557
LUBOMBO DISTRICT						
Nomahasha	2,535	2,481	10,155			
Lubuli	6,140	7,209	11,361			
Sipofaneni	12,087	11,878	16,257			
St. Philips	4,773	3,721	4,022			
Singeni	-	-	4,774	25,585	25,289	46,569
Sidvokodvo Railway Clinic (Manzini District)	11,132	9,272	10,859			

Chapter IV

MEDICO-LEGAL POSTMORTEM EXAMINATIONS

The number of medico-legal postmortem examinations carried out at Government and subsidised Mission Hospitals from 1968 to 1970 were as follows:-

	1968	1969	1970
Mbabane Hospital	44		60
R.F.M. Hospital	127	102	93
Good Shepherd Hospital	36		56
Hlatikulu Hospital	52	59	45

ASSAULT AND RAPE EXAMINATIONS

	1968	1969	1970
Mbabane Hospital	209		429
R.F.M. Hospital	428	442	455
Hlatikulu Hospital			140
Good Shepherd Hospital			121

DRIVING UNDER THE INFLUENCE OF LIQUOR OR DRUG EXAMINATIONS

	1968	1969	1970
Mbabane Hospital	7		24
R.F.M. Hospital	52	57	43
Hlatikulu Hospital		5	3
Good Shepherd Hospital			6

All the above examinations are done at the request of the police.

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Chapter V

HAVELOCK MINE HOSPITAL

NUMBER OF INDIGENOUS POPULATION
(NEITHER EMPLOYEES NOR THEIR DEPENDENTS)
TREATED AT THE MINE HOSPITAL DURING 1970

Number of admissions	691
Number of out-patients (new cases)	1,864
Number of out-patients (re-attendances)	2,086
In-patient days	4,259
Daily number of in-patients	11.6

ANNUAL RETURN OF VACCINATIONS (1970)

(a)	Primary Vaccinations	:	369
	Re-vaccinations	:	486
(b)	Certificates issued	:	
	Primary	:	47
	Re-vaccinations	:	486

The figures given under (a) are inclusive of those under (b).

Chapter Vl

PRISONS' MEDICAL REPORT

Dr M.H. Dober was appointed Prisons' Medical Officer in June, 1970, fro Prisons at Matsapha, Malkerns, Mankayane, Manzini, Big Bend and Siteki.

Matsapha is the largest prison taking mainly long-term prisoners with a maximum total population of 455. From August, routine chest X-rays and sputum examinations were performed on all new admissions to the prison. A total of 21 new pulmonary T.B. cases were diagnosed and subsequently treated at the prison.

Malkerns prison comprises Malkerns Juvenile School and the Young Persons Prison. The Juvenile School was opened by the Prime Minister, Prince Makhosini on the 13th August, 1970. The school is for boys aged between 14 and 18 years, and the period served at the school is six months for each boy. The school can take a maximum of 80. An outbreak of typhoid occurred in November at the school. The number of affected boys was twenty-one. Two required hospitalisation All the affected boys were isolated, and the other boys and staff given a course of T.A.B. vaccine. A warder working in the kitchen was found to be a carrier. There were no deaths in any of the cases.

The Young Persons Prison holds a maximum of 100.

Maximum number of prisoners at the following prisons are:-

Manzini Women's Prison	-	118
Big Bend Prison	-	300
Siteki Prison	-	80
Mankayane Prison	-	78

Chapter V11

MATSAPHA MENTAL HOSPITAL

1. STATISTICS:

	Male	Female	Total
In patients present on 1.1.70	113	53	166
Admitted in 1970	175	56	231
Discharged in 1970	177	48	225
Died in 1970	3	1	4
Present on 31.12.1970........	108	60	168

NUMBER OF IN-PATIENTS DAYS:

Male - 42311 at an average of 147 days per patient

Female - 21486 at an average of 197 days per patient

Total - 63797 at an average of 161 days per patient

The number of chronic patients - those in residence over 12 months - has increased by 16 and their numbers on the 31st December, 1970, were as follows:

Male: - 65 = 60%

Female - 33 = 55%

Total - 98 = 58%

DIVISION ACCORDING TO STATUS:

In-patients on 31.12.1970	Male	Female	Total
Certified	46	28	74
Voluntary	34	30	64
Temporary	25	2	27
H.M. Pleasure	3	-	3
Total	108	60	168

Age groups on 31.12.1970	Male	Female	Total
Under 15	0	1	1
15 - 19	2	1	3
20 - 29	28	18	46
30 - 39	35	20	55
40 - 49	21	11	32
50 - 59	9	6	15
60 - 69	11	3	14
70 & over	2	0	2
Total	108	60	168

General

It will be noted that there has been a substantial increase in the admission and discharge rate, especially in the male section, as compared with last year's figures.

It can be anticipated that there will be a further increase in 1971 due mainly to the large number of patients with a history of alcoholism and drug addiction admitted and discharged during 1970.

Of those discharged a considerable percentage will be re-admitted this year.

It has also been observed that Toxic Psychosis has become more common in the 20 to 40 age group, whereas last year's figures indicated greater incidence in the 30 to 60 age group.

Electro-Convulsive Therapy has been extensively used in the treatment of Depression and Schizophrenic conditions with good results especially in the more disturbed patients who presented a nursing problem.

The Mental Hospital has been regularly visited by a Medical Officer twice weekly throughout the year.

These visits, although of obvious value, are not frequent enough for the Medical Officer to give routine medical attention to all patients at reasonable intervals and full medical attention to those in-patients who require it and to out-patients as well.

Until such time when a resident Medical Officer is appointed to the Mental Hospital arrangements should be made for an additional weekly visit, preferably in the morning, if last year's discharge rate is to be maintained in 1971.

CHAPTER VIII

PUBLIC HEALTH UNIT

The Health Centres

The three Government Health Centres - Mbabane Health Centre, King Sobhuza II Health Centre, Manzini, and Hlatikulu Health Centre, have had a very busy year. In addition, a Sub-Health Centre was started at Mankayane in August 1970, and it is also very busy. Other service points of the Mbabane Health Centre are - Siphacosini, Lozitha Royal Residence, Mbekelweni, Makhwane, Edwaleni Power Station, and the Youth Training Camp.

The Mbabane Health Centre building which was an Independence gift to the people of Swaziland from the people of the Island of Jersey, was officially opened by His Majesty, King Sobhuza the Second on the 18th March, 1970. Also present at the opening were His Excellency the Prime Minister, Prince Makhosini, Cabinet Ministers and other distinguished guests. The Island of Jersey was represented by Mr. Percy Hine, who is a native of Jersey and who is stationed at Mhlambanyati.

Important visitors to the Mbabane Health Centre included :

Dr. C. Cywinski, W.H.O. Representative, Maseru
Dr. Ivań Iadnyi, W.H.O. Nairobi - in charge of smallpox irradication
Mr. J. Dobes of UNICEF - Supplies Officer
Mr. and Mrs. Smith from Trinity in Jersey
Dr. David Standing, Chief Medical Officer, Botswana
Mrs. Kupe, Chief Nursing Officer, Botswana
Miss E. Hilborn, U.S. Public Health Service, Washington D.C.
and many from the Republic of South Africa.

Health Centre Activities

These included :-

1. Maternal and child health service. Ante-natal and post-natal care, Mother and child health clinics. Home visits to educate mothers on the care and improvement of feeding of their children.

2. All the profylactic and internationally required vaccinations.

3. Education in health and nutrition of the mothers attending special sessions at the health centre and of the community through group discussions, radio programmes, etc. Lecture materials, including posters and other visual aids are supplied to clinics.

4. A special campaign was mounted this year against Poliomyilitis following a sporadic occurrence of the disease. With the advent of Cholera to the African Continent, an innoculation campaign was started during 1970.

5. Medical examinations for those proceeding on overseas scholarships and fellowships were undertaken at the Mbabane Health Centre.

The Public Health nurses stationed at the Health Centres visit the surrounding clinics in order to assist in the maternal and child health programmes which are conducted through these clinics. All clinics in the Shiselweni area were visited at least once a month during the period under review. All the other Government clinics were visited at least four times during this period. The Public Health nurses manned emergency first-aid posts at Nhlangano during the annual Show, and during the celebration of His Majesty's birthday. A first-aid post was also put up and manned at the Somhlolo Stadium during the Independence Anniversary Celebrations. A Health Education stand was manned at the Agricultural Show, with continuous health talks to individuals and groups. This proved very successful.

Training

A Clinic Nurse's refresher course sponsored by UNICEF was run by this unit in conjunction with the College of Nursing in Manzini, from January to February 1970. Ten nurses participated, and this was followed by a similar course for Mission Nurses held in the Manzini College of Nursing, in which the Public Health Unit staff also took part.

Staff Nurse D.P. Mbelu is at present absent on study leave in the United Kingdom. She is doing a course in Public Health Nursing with the Aberdeen Public Health Service.

Donations

Two thatched Swazi umbrellas have been donated to the Mbabane Health Centre by the Royal Swazi Hotel. These shelters not only fulfil a need, but have also improved the appearance of the Health Centre plot. A donation of R500 was received from the Mbabane Round Table in order to purchase an automatic staining machine. This is designed to assist in the new diagnostic service for cancer of the womb in Swaziland.

Health Education

Shortage of staff in the Public Health Unit made it very difficult for the Health Education Section to carry out its programme as planned for the year. However, regular group health education was carried out in the Health Centres and Sub Centres.

Co-operation between the Health Education Section and the Ministry of Agriculture is running smoothly, and the Health Education Section has attended most of the short courses and seminars mounted by the Ministry of Agriculture, and has given talks and lectures.

Activities of this Section during the year included health talks and demonstrations, the display of posters and figurines and participation in the Swaziland Show. Distribution of leaflets to the public; films on health were shown to the public at various centres throughout the country. Two short films were produced with the co-operation of the Ministry of Agriculture - one on child care and one on nutrition.

The attendance at these Health Education activities during the year was - 5,284 women and 486 men.

A series of 44 information leaflets on various health subjects and diseases was prepared by the Health Education Section during the year. These are widely distributed and are written in English and Siswati.

The Environmental Services

The Health Inspectorate, one Senior Health Inspector and three District Health Inspectors, continued to be overworked in endeavouring to cover an increasing span of duties. The usual inspections of hotels, food premises, shops and factories continued and improvement was achieved. Meat was inspected and certified at the various Township abbatoirs. A vacuum tanker service was started and is fully employed. Plans of all new buildings in controlled areas were inspected. Priority was given to the protection of rural water supplies, and numerous springs were protected and made safe. Some village supplies were completed. Over the past five years eight village supplies and over 130 springs have been protected. The Health Inspectors worked closely with the Department of Labour and the Ministry of Local Administration. A refresher course for over 40 Health

assistants was mounted successfully at Luyengo, and lasted for a week. During the year our Health Inspectors attended many seminars and meetings, and their services were called upon very frequently for lectures and demonstrations to various groups. With the posting of Health assistants to each District, there was an immediate increase in the protection of local water supplies. But the demand is increasing and the staff is still hopelessly inadequate.

Communicable disease

During 1970 there were no serious outbreaks of communicable disease in Swaziland.

PUBLIC HEALTH UNIT

TOTAL ATTENDANCES AT HEALTH CENTRES FOR 1970

HEALTH CENTRE	A.N.C.		C.W.		P.S.		SCHOLARSHIP MEDICAL EXAMINATION	SYPHILIS	GONORRHOEA	MALNUTRITION	KWASHIORKOR	DEATHS	D.P.T.		POLIO		T.A.B.	SMALLPOX	CHOLERA	YELLOW FEVER	B.C.G.	MEASLES	TETANUS
	NEW CASES	ATTENDANCES	NEW CASES	ATTENDANCES	NEW CASES	ATTENDANCES							1ST DOSE	SUBSEQUENT	1ST DOSE	SUBSEQUENT							
MBABANE	1383	4979	1222	10776	678	5747	148	37	12	22	3	9	893	930	11788	1466	8	5091	10361	386	542	135	
HLATIKULU	898	2830	515	6681	403	4120		22	2	22	21	1	312	384	3881	1334		240			215		
KING SOBHUZA II	372	1246	805	5178	278	1986		17	8	5	11	1	400	536	5008	938		2286	573		196	11	
MANKAYANE	180	856	242	1792	444	2330				25	14	5	141	115	449	392		530			472		
	2833	9911	2784	24427	1793	14183	148	76	22	74	49	16	1746	1965	20126	4130	8	8147	10934	386	1325	146	

GRAND TOTAL - ATTENDANCES FOR 1970 - 48521 of which 7410 were new cases.

CHAPTER IX

LABORATORY SERVICES

1. Three fully equipped laboratories i.e.

   (a) Central Public Health Laboratory, Manzini which acts as the reference and parent laboratory and supplies all equipment, solutions and culture medias.

   (b) Mbabane Hospital Laboratory

   (c) Hlatikulu Hospital Laboratory

2. These three laboratories are capable of carrying out most types of investigations required. The Central laboratory is also the Training centre for laboratory assistants. Plans are being made for its extention to include a Explorative Cytology and National Blood Bank department.

3. The present small laboratory at Piggs Peak is expected to be enlarged during the coming year. And a small clinical side room laboratory is planned for Mankaiana Hospital.

4. Two Micrscopists attached to the Central labcratory attended a three months Polyvant Microscopists course at the W.H.O. Training Centre in Nigeria.

5. A total number of 15,162 types of examinations were carried out during the year at the Central Laboratory. This total does not include Tuberculosis Bacteriology cultures which a total of 12,512 were done which would make a grand total of 27,696 examinations carried out during the year at the Central Laboratory Manzini.

DETAILS OF WORK CARRIED OUT FOR 1970

NAME OF TEST	TOTAL	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Blood Culture		29	12	13	14	17	18	15	13	5	9	14	10	169
Stool Culture		7	4	1	9	4	13	17	5	22	19	156	133	390
Stool Microscopy		58	24	15	30	36	46	30	31	51	51	44	28	444
Urine microscopy and Chem.		51	45	90	45	42	45	65	49	44	98	60	45	679
Urine Culture		17	15	14	13	11	11	17	15	30	14	35	18	192
Culture		30	15	28	27	27	32	25	23	20	24	17	14	282
Sensivity		39	34	36	39	26	28	24	29	23	20	12	23	333
Smear micrscopy		8	14	13	11	12	7	7	4	8	0	23	7	114
Bilharzia		4	0	7	6	5	11	4	4	9	10	13	18	91
Diff. Count & W.C.C.		3	4	8	11	6	1	2	2	3	7	4	8	59
C.S.F.		7	6	6	4	3	1	3	3	1	2	1	2	39
Full Blood Count		1	2	3	3	6	3	5	11	5	6	19	6	70
Hb.		19	16	14	20	11	8	14	15	56	34	51	62	320
E.S.R.		2	1	1	0	2	0	2	0	3	0	0	0	11
Platelet Count		0	0	0	0	0	0	0	0	1	1	0	0	2
Coagulation Time		0	0	0	0	0	0	0	0	0	0	0	0	0
Pregnancy Time		1	2	1	0	6	1	5	6	3	2	13	11	51
Semen analysis		0	0	2	2	1	2	0	1	0	0	0	0	8
Smears for Cytology		0	0	15	7	12	13	10	18	10	22	25	12	144
Smears for Leprosy		13	2	0	15	0	0	5	0	0	0	0	0	35
Smears for Malaria		0	0	0	0	0	1	1	0	0	0	1	0	3

DETAILS OF WORK CARRIED OUT IN 1970 (cont'd)

NAME OF TEST TOTAL	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Water Samples	47	27	20	30	13	15	15	20	9	54	16	16	282
Milk Samples	30	27	16	12	12	6	11	14	12	12	16	11	169
Fungi	2	3	0	0	0	0	3	2	1	0	0	0	11
Sputum for Asbestos bodies	0	0	0	0	0	0	0	10	14	18	0	0	42
Steel Chemistry	0	0	0	0	0	0	0	0	0	3	0	1	4
V.D.R.L.	579	667	694	695	603	737	729	599	735	728	948	740	8554
Widal	137	94	93	78	80	82	71	69	90	118	234	147	1293
Grouping	-	31	39	7	27	27	5	20	8	14	14	3	195
Infectious Monocleosis	1	1	-	1	2	-	3	1	3	4	3	2	21
Milk Analysis (Methylene blue (Phosphatase	3	3	4	2	2	1	3	4	2		2	-	26
Blood Chemistry : Glucose	2	3	1	1	3	7	1	3	3	3	-	6	33
Urea	11	5	4	2	3	5	1	2	1	4	3	2	43
Bilirubin	7	7	11	20	13	8	3	1	2	3	2	1	64
Protein	5	7	8	7	9	5	4	1	9	4	4	3	66
Uric Acid	3	5	3	2	4	5	1	1	1	4	6	2	37
Cholesterol	3	4	3	2	4	4	-	3	1	2	2	1	29
Phosphatase (Acid (Alkaline	20	13	15	26	6	10	4	2	4	4	4	2	110

NAME OF TEST	TOTAL	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Inorganic Phosphates		-	-	-	-	-	2	-	-	1	1	1	2	7
Amylase		4	2	1	5	5	3	1	3	-	3	4	0	31
Calcium		2	3	5	6	6	7	2	-	1	2	0	0	34
Thymol Turbidity		-	-	-	-	-	-	-	-	-	3	1	2	6
Transaminase C.O.T.		5	3	6	6	11	2	-	2	1	3	1	6	46
R.A. Test for Rheumatoid factor		1	1	2	-	-	1	-	-	1	1	1	1	9
C-Reactive protein		1	3	-	-	-	3	2	2	-	-	1	-	12
Electrolytes Na & K		10	15	7	10	9	8	12	5	8	3	7	2	96
Electrophoresis of Protein		2	4	1	1	3	1	1	1	-	2	2	-	18
C.S.F.		10	6	10	5	3	3	4	3	2	2	-	1	49
Vi Test		-	-	82	56	-	1	40	1	15	4	126	23	348
Serum Chloride		-	2	2	1	1	-	1	1	-	2	-	1	11
Greatinine in Blood		2	-	-	5	2	3	2	1	3	-	1	-	19
Creatinine in Urine		-	-	-	-	-	1	-	-	-	-	-	-	1
Fat Content of Milk		4	-	3	-	3	6	3	3	-	4	-	-	26
Body Fluids S.G. & Protein							1	1	-	3	1	2	-	8
Gastric Analysis									1	1	1	1	-	4
Blood Alcohol Contents for the Road Traffic Act.														44
												TOTAL		15,162

CHAPTER X

FINANCE

The Financial Statement of the Ministry of Health for the period 1st April 1970 to 31st March 1971 is as follows:-

REVENUE	1969/71	1970/71
Hospital, Health Centre & Other Fees	R57795	72828
EXPENDITURE		
Personal Emoluments	557795	641588
Travelling Expenses	19460	24774
Office Expenses	3204	3315
Fuel, Light & Water	49774	51200
Uniforms	10447	10791
Labour	21890	20664
Running Costs of Vehicles	7395	80888
Postal Services	-	6172
Maintenance of Patients Feeding	67817	68111
" " " Drugs	155053	197349
" " Mental Patients	14031	14238
Medical Allowances & Fees	1620	1910
Maintenance of Hospital Equipment	1915	4750
Hospital Equipment	25026	30273
Upkeep of Grounds	447	819
Temporary Reliefs	36567	34598
Anti-Malaria Control	7962	11623
Bilharzia Control	-	1968
Laboratory Services	3890	2863
Public Health Measures	2496	2875
Staff Training	-	67
Panel of Visiting Specialists	3450	1166
Other Transport Charges	5415	4591
Vaccum Tanker Service	-	1080
Grants to Missions	76246	112820
	1071900	1330492

CONCLUSION

I wish to express my sincere appreciation of the loyal and efficient manner in which members of the Ministry carried out their duties during the year.

J. Klopper

(Dr. J. Klopper)

CHIEF MEDICAL OFFICER

Ministry of Health Staffing

As at 31st December, 1970

Minister of Health — The Hon. Dr A.M. Nxumalo M.H.A.

Post	Holder	Station
Permanent Secretary	Dr F. Friedman	Ministry of Health
Chief Medical Officer	Dr J.M.L. Klopper	" "
Consulting Opthalmic Surgeon (Part-time)	Dr G. Trampton	-
Senior Medical Officer (3)	Dr S.P.N. Shongwe	Mbabane Hospital
	Dr Kaplan	Manzini
	Dr Z.M. Dlamini (atg)	Hlatikulu
Medical Officer (14)	Dr W.J. Downing	Mbabane
	Dr E.V. Blekic	"
	Dr M.G. Hague Moss (temporary)	"
	Dr K.P. Mokhobo	"
	Dr E.D. Rwairwai	Pigg's Peak
	Dr K.E. Anderson	Hlatikulu
	Dr N.P. Chuene (study)	Mbabane
	Dr M.H. Dober	Mankayane
	Dr P.A. Kennedy	Hlatikulu
	Dr D.W. Patient	Mbabane
	Dr J.L. Nxumalo	Mbabane
	3 vacancies	
Dental Officer	Dr P.S.P. Dlamini	Mbabane
Senior Medical Officer of Health	Dr G.G. Murphy	Ministry of Health
Medical Officer of Health	Dr T.G. Behan	Manzini
Hospital Administrator (SCAAP)	K.H.P. Jenkin	Ministry of Health
Principal	D.N. Shongwe	" " "
Executive Officer	W.K. Bujela	" " "
Pharmacist/Storekeeper (2)	Mr G.R. Gibbon	Central Medical Stores
	Mr J.L. van der Vyver	" " "
Laboratory Technologist (3)	Mr M.A. Witcomb	Manzini
	Mr M. Ndlela	Hlatikulu
	Mr V. Khoza	Mbabane

Post	Holder	Station
Senior Radiographer	Vacant	
Radiographer (5)	Mrs A. Kanyile	Mbabane
	Mr D. Shabangu	Hlatikulu
	Mrs B. Dlamini	Mbabane
	Mrs S.M. Tshabalala	"
	Mrs H.S. Ntsele	Hlatikulu
Senior Health Inspector	Mr C.D. Nxumalo	Ministry of Health
Health Inspectors (4)	Mr L.N. Mbabane	Nhlangano
	Mr L.L. Mthethwa	Manzini
	Mr E.S. Magubane	Siteki
	Mr P.M. Matthews	Manzini
Physiotherapist	Miss Evans (IVS)	Mbabane
Mental Hospital Supervisor	Mr K. Kral	Matsapa
	Mr N. Dlamini (supernumerary)	"
Hospital Secretaries (2)	Mr J.L. Nyembe	Mbabane
	Mr J. Masuku	Hlatikulu
Senior Accountant	Mr J. Hertslet	Ministry of Health
Asst Accountant (3)	Mr J. Mavimbela	Mbabane
	Mr W. Zwane	Ministry of Health
	Mr J.M. Nkosi	" " "
Personal Secretary Grade I	Miss A. Cole	" " "
	Mrs Wallace	" " "
Personal Secretary Grade II	Mrs G.S. Mazibuko	" " "
	Miss I.V. Mabusela	Mbabane
Matron Grade I (2)	Mrs A.C.T. Mabuza	Hlatikulu
	Mrs V.W.S. Mabuza	Mbabane
Matron Grade II (4)	Mrs N.N. Dludlu	Mbabane (P.H.U.)
	Mrs M.B. Masipa	Pigg's Peak
	Mrs E. Mthethwa	Mankayane
	Mrs G.T. Abrahams	Hlatikulu
Nursing Sisters (20)	Mrs D. Bhengu	Mbabane
	Mrs A. Dlamini	" (P.H.U.)
	Mrs F. Dlamini	Hlatikulu
	Mrs M. Gininda	Mbabane
	Mrs S. Khoza	"
	Mrs J. Khumalo	"
	Mrs A. Mahluza	"
	Mrs T. Masuku	Hlatikulu

Post	Holder	Station
Nursing Sisters	Mrs E. Nxumalo	Mbabane
	Mrs I. Shulubane	Hlatikulu
	Mrs E. Simelane	Mbabane
	Mrs J. Zwane	"
	Mrs S. Kunene	Hlatikulu
	Mrs J. Mamba	Hlatikulu
	Mrs G. Nkosi	Mbabane
	Mrs S.C. Tshabalala	Hlatikulu
	Mrs E. Dlamini	Hlatikulu
	3 vacancies	
Staff Nurses 214	2 vacancies	
Medical Assistant	Mr A.F.K. Phiri	Hlatikulu
Housekeeper (3)	3	
Handyman (3)	3	
Accounts Officers (8)	8	
Clerical Officers (15)	15	
Storeman (4)	3	
Dispensers (13)	12	
Laboartory Assistants (10)	10	
Microscopists (7)	7	
Health Assistants (30)	30	
Ambulance Drivers (14)	14	
Mental Patient Attendants (13)	13	
Typists (2)	1	
Senior Cooks (2)	2	
Senior Orderlies (3)	2	
Drivers (9)	9	
Senior Telephone Operators (5)	5	
Telephone Operators (3)	3	
Hospital Orderly (90)	90	
Nurse Aide (43)	43	
Cook (16)	16	
House Maid (7)	7	
Nightwatchman (16)	16	
Groundsman (6)	6	
Messengers (2)	2	
Wardmaid (3)	3	

APPENDIX II

RETURN OF CASES TREATED - GOVERNMENT AND MISSION HOSPITALS - 1970

Detailed List No.	Group Causes	Out-Patients	In-Patients	Total Cases	Deaths
001-008	T.B. Respiratory System	543	1055	1598	125
010	T.B. of Meninges or C.N.S.	1	8	9	3
011	T.B. of the Intestine & Peritoneum	1	38	39	6
012-013	T.B. of Bones & Joints	29	38	67	3
014-019	T.B. - All Other Forms	112	92	204	8
020	Congenital Syphilis	24	3	27	-
021	Early Syphilis	505	9	514	-
024	Tabes Dorsalis	-	-	-	-
022-023 026-029	All Other Syphilis	519	15	534	-
030-035	Gonocal Infection	2890	18	2908	-
036-039	Other Veneral Diseases	59	17	76	-
040-041	Enteric Fever	118	311	429	24
044	Brucellosis	-	-	-	-
045	Bacillary Dysentery	252	164	416	4
046	Amoebiasis	91	97	188	6
052	Scarlet feve, Erysipelas & Septicaemia	26	5	30	2
055	Diptheria	8	12	20	1
056	Whooping Cough	410	113	523	3
057	Meningococal Infections	2	18	20	2
060	Leprosy	4	12	16	1
061	Tetanus	-	46	46	23
080-083	Poliomyelitis & Effects of Polio	28	16	18	2
084	Smallpox (Variola Minor)	1	27	53	-
085	Measles	1469	631	2100	29
092	Infectious Hepatitis	22	64	86	-
104	Tick-Bite Fever	9	2	11	-
116	Malaria	4	9	13	9
123-1	Belharzia (Vesical)	994	62	1056	62
123-0	Belharzia Intestinal	7	5	12	5
126	Tape Worm	324	25	349	25
130-0	Ascariasis				
130-1 124-128	Other Helminthic Diseases & Hydatatid Disease	125	1	124	1
049	Poisoning - Food	106	75	181	3
087	Chicken Pox	278	24	302	24
131	Dermatophytosis	224	15	239	15
135	Scabies	279	9	288	9
137-138	Other Infective and Parasitic Diseases	24	19	43	19
140-150	Malignant Neoplasms of				
	(a) Moth, Pharynx, Oesophagus	29	20	49	3
151-154	(b) Stomach, Intestine, Rectum	2	12	14	1
161-163	(c) Larynx, Trachea, Lung	7	7	14	1
170	(d) Breast	1	5	6	1
171	(e) Cervix Uteri	2	44	46	5
172	(f) Body of Uterus	-	2	2	1
177	(g) Pristate	-	11	11	2
191-9	(h) Skin	1	-	1	-
196-7	(i) Bone & Connective Tissue	-	3	3	-
199	(j) All Other Sites	-	25	25	8
204	Leukaemia		2	2	1
210-239	Benign Neoplasma	175	154	329	2
250-251	Non-Toxic Goitre	102	21	123	21
252	Thyrotoxicosis	21	13	34	13
260	Diabetes Mellitus	113	71	184	4
281	Pellagra	888	94	982	5
282	Scurvy	40	37	77	12
286-6	Kwashiorkor	480	283	691	44
286-5	Malnutrition unqualified	1308	420	1728	48
290	Hyperchromic Anaemias	4	4	8	4
291	Hypochromic Anaemias	-	-	-	-

Detailed List No.	Group Causes	Out-Pat-ients	In-pat-ients	Total Cases	Deaths
292-293	Anaemia, unspecified	168	45	213	4
241	Asthma	647	142	789	4
240,242) 245)	Other Allergic Disorders	509	34	543	2
300-309	Psychoses	65	30	95	30
310,324) 326)	Psychoneuroses & Hysteria	212	84	296	84
325	Mental Deficiency	160	46	206	1
330-334	Vascular Lesions of C.N.S.	15	11	26	1
340	Meningitis (Non-Meningococcal)	6	37	43	7
353	Epilepsy	202	86	288	86
370-379	Inflammatory Diseases of Eye	1167	92	1259	92
385	Cataract	96	27	123	27
387	Glaucoma	22	7	29	7
390	Otitis Externa	181	24	205	24
391-393	Otitis Media & Mastoiditis	1329	97	1426	96
380-384	All Other Diseases of Eye	857	180	965	108
341-344	Other Diseases of C.N.S. & Sense Organs	161	157	318	17
400-402	Rheumatic Fever	92	30	122	5
410-416	Chronic Rheumatic Heart Disease	44	47	91	2
420-422	Arterio-Sclerotic & Degenerative Heart Disease	67	71	138	15
430-434	Other Heart Diseases	240	165	405	31
440-443	Hypertension & Heart Disease	43	14	57	1
444-447	Hypertension	534	128	662	8
450-456	Diseases of Arteries	46	17	63	4
460-468	Other Diseases of Circulatory System	186	89	275	7
470-475	Acute Upper Respiratory Tract Infections including Acute Tonsillitis	443	550	4981	6
480-483	Influenza	4233	367	4600	3
490	Lobar Pneumonia	164	164	328	9
491	Bronco-Pneumonia	750	440	1190	41
492-493	Atypical Pneumonia	279	199	478	19
500-	Acute Bronchitis	2328	202	2530	5
501-502	Bronchitis, Chronic and Unspecified	1689	200	1889	7
512	Chronic Pharyngitis & Chronic Tonsillitis	369	39	408	39
518-521	Empyema & Lung Abscess	12	31	43	2
519	Pleurisy	109	65	174	65
523	Pneumoniasis				
520 522	Other Respiratory Diseases	2520	114	2634	2
530	Dental Caries	8640	31	8671	31
531-535	All Other Diseases of teeth and Gums	666	64	730	1
540	Gastric Ulcer	108	35	143	35
541	Duodenal Ulcer	22	20	42	20
543	Gastritis & Duodenitis	997	363	1360	8
550-553	Appendicitis	65	103	168	1
570	Intestinal Obstruction	3	32	35	5
560	Hernia	41	75	116	75
570-0	Gastro-Enteritis (4 weeks to 2years)	4174	830	5004	32
570-1	Gastro-Enteritis (over 2 years)	3330	704	4034	43
572	Chronic Enteritis & Colitis	212	21	233	2
581	Cirrhosis of Liver	66	110	176	22
584-585	Cholecystitis	23	20	43	20
536-539) 544-573) 580-582) 583-586) 587)	Other Diseases of Digestive System	2176	371	3347	3
590	Acute Nephritis	36	32	68	3
591-594	Chronic Nephritis	28	23	51	3
600	Infections of Kidney	130	136	266	6
602-604	Calculi of Urinary System	11	11	22	11
610	Hyperplasia of Prostate	29	9	38	9
620-621	Diseases of Breast	97	19	116	19
613	Hydrocele	110	73	183	73
634	Disorders of Menstruation	1797	274	2071	274

Detailed List No.	Group Causes	Out-patients	In-patients	Total Cases	Deaths
601,603) 605,609) 611,612) 614-617) 622-633	All Other Diseases of Genito-Urinary System	4117	1037	5154	9
660	Normal Deliveries				
671)	Deliveries with Complications				
673-678)	" " "				
640,641	Sepsis of Pregnancy				
642	Toxaemia of Pregnancy	18	36	54	5
643-644) 670,672)	A.P.H. - Haemorrhage of Preganancy and Childbirth	6	19	25	19
650	Abortion	359	730	1089	2
651	Abortion with Sepsis	98	23	121	1
690-698	Infection of Skin and Subcutaneous Tissues	1505	452	1957	3
720-727	Arthritis & Spondylitis	424	115	539	115
726,727	Muscular Rheumatism and Rheumatism Unqualified	1028	36	1064	36
730	Osteomyelitis & Periostitis	46	81	127	1
737,745) 749)	Ankylosis and acquired Musculo-Skeletal Deformity	22	28	50	28
700-714	All Other Diseas of the Skin	1409	164	1573	164
731-736	All Other Diseases of Musculo-Skeletal System	302	189	491	189
750-759	Congenital Malformations	113	51	164	4
760-762	Birth Injuries	10	12	22	2
765	Ophthalmia Neonatorum	16	7	23	7
770	Haemolytic Disease (Neo Natal)	-	-	-	-
773-776	Other Diseases-Early Infancy	131	60	191	22
791	Senility	51	11	62	11
788-9	P.U.O.	578	117	695	117
788-1-) 788-7) 788-9) 789-792) 795)	All other Ill-Defined Causes of Morbidity	5690	1254	6944	39

"E" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONING AND VIOLENCE (EXTERNAL CAUSE).

Detailed List No.		Out-patients	In-patients	Total Cases	Deaths
E810-E835	Motor Vehicle Accidents	441	312	753	16
E800-E802	Other Transport Accidents	91	87	178	6
E870-E895	Accidental Poisoning	79	121	200	3
E900-E904	Accidental Falls	777	481	1258	1
E612	Accidents Caused by Machinery	155	45	200	-
E916	Accidents Caused by Fire	235	125	360	10
E917,E918	Accidents caused by Hot Substances and Corrosives	260	73	333	2
E919	Accidents Caused by Firearms	14	8	22	-
E910-E913) E915,E920) E928,E930) E965)	All Other Accidental Causes	1971	1015	2986	4
E970-E979	Suicide and Self-Inflicted Injury	-	5	5	-
E980-E985	Assault, Homicide	1187	945	2132	11

"N" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONING AND VIOLENCE (NATURE OF INJURY)

N800-N804	Fracture of Skull	54	140	193	10
N805-N809	Fracture of Spine & Trunk	36	83	119	6
N810-N829	Fracture of Limbs	711	730	1441	4
N830-N839	Dislocation	137	83	220	83
N840-N848	Sprains and Strains	1056	242	1298	242
N850-N856	Head Injury (excluding Fracture)	446	296	742	14
N860-N869	Internal Injury, Chest, Abdomen and Pelvis	31	102	133	6
N870-N908	Laceration & Open Wounds	2316	854	3170	6
N910-N929	Superficial Injury - Contusion	766	408	1174	408
N930-N936	Foreign Body entering through Orifice	84	95	179	1
N940-N949	Burns	533	233	766	13
N960-N979	Effects of Poison	93	179	272	8
N950-N959) N980-N999)	All other effects of External Causes	12	169	181	2

Detailed List No.		Out-pat-ients	In-pat-ients	Total Cases	Deaths
Y00	Medical Examinations, Board and Tax Exemption Examinations	9707	142	9849	142
Y02	Prophylactic Injections:				
	(a) Smallpox Vaccination	3115			
	(b) T.A.B.	8			
	(c) Diphtheria, Whooping Cough and Tetanus	264			
	(d) Tetanus	6			
	(e) Poliomyelitis	975			
	(f) Yellow Fever	1			
	(g) Cholera	1369			
	(h) Others	191			
Y06	First Ante-Natal Examinations	4703	25	4728	25
Y08	Deliveries with Complications	6	425	431	9
	Attendants admitted as In-Patients with sick children	-	1711	1711	1711
	Normal Deliveries	1073	3900	4973	3

SUBSEQUENT ATTENDANCES:

	Out-pat-ients	In-pat-ients	Total Cases	Deaths
Subsequent Injections	1650			
Subsequent attendances excluding ante-Natal	31127	1	2216	1
Subsequent ante-Natal attendances	2285			